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VOL. XL., No. 21. FRIDAY, MAY 25, 1906.

The results of last year's operation on two coal and ore carrying roads, the Pittsburg & Lake Erie and the Bessemer & Lake Erie, reviewed in this issue of the *Railroad Gazette*, are in certain respects little short of marvelous. When two railroads are able to show average revenue train-load figures, one of 937, the other of 1,076 tons, it is remarkable enough; but when we learn that the average tonnage southbound on one of them is 1,406 tons per train, there is a chance to realize the immense economies of modern methods of handling heavy tonnage. The Bessemer & Lake Erie, which shows this exceptional figure, is largely an ore-carrying road, ore furnishing nearly six of the nine and a half million total tonnage. As part of the machinery developed by the United States Steel Corporation for transferring Lake Superior iron ores to the Pennsylvania mills, the road shares in the tremendous economies which have been brought about by modern methods of handling and transportation. On the Pittsburg & Lake Erie, on the other hand, coal and coke furnish over fourteen of the nearly twenty-five million tons, ores amounting to not quite three million and a half tons. A large tonnage of manufactured iron and steel products in addition helps to make the road nearly twice as heavy an earner on a mileage basis as the Philadelphia & Reading which, has the next largest gross earnings per mile of any American railroad. The fact that the Vanderbilt road is operated at 43.4 per cent. of gross for expenses and the Steel Corporation's line at 48.99 per cent., goes to show how profitable railroad operation can be when sufficient traffic is available.

The fact that President James J. Hill, in his new railroad project in Canada, proposes to build some 1,300 miles of trackage on "cash" stock, which can hardly amount, counting cost of equipment, to less than $30,000,000, is both a present-day novelty in railroad finance, and has a historical suggestiveness, past and future. Looking back to the dawn and first lights of railroading, one finds the original lines built generally on paid-in stock; the railroad corporations naturally following the analogy of ordinary chartered industrial enterprise of those early days, of which, perhaps, the turnpike companies were precedents nearest to the railroads. Progressively the "bond idea" has since been overtopping the "stock idea" in new railroad construction; but the stock idea is far from extinct. Probably if we were to interview the leading railroad presidents of the country, we should find a good many of them not only extolling the stock theory for railroad extension, but also for railroad conversion; that is, substituting stock for present bond issues. Their reasoning is based on the idea of a flexible dividend adjusting itself to net earnings, and to times good or bad, as contrasted with the binding and imperative fixed charge. That an uncertain dividend as compared with a more definite underlying charge on earnings would really create a pleasanter financial situation for railroad managers is, however, open to considerable doubt, especially when the temper and moods of shareholders are reckoned in as also the fact that the accepted and looked-for dividend rate is apt to be considerably in excess of the interest rate. On the other hand, what is not doubtful, is that the "all-stock" theory is sounder as a financial system—simpler, more straightforward and lending itself much less easily to tricks of inflation and high finance. Will that theorem gain force and the original and simpler method of railroad financing repeat itself? Certainly present tendencies and the enormous emissions of railroad securities senior to shares and stock capital do not look that way. Nor do the long periods for which so many issues of bonds run. But, on the affirmative side, may be set the recent large issues of convertible securities and the puzzling complexities which issues of securities outside of stock are reaching, to the confusion of even fairly experienced investors. If railroad sinking funds, to extinguish time debt, become more common, we shall see a more distinct approach to the "all-stock" proposition. We do not need, therefore, President Hill's fiscal example to prove that the stock question is not entirely an academic one, and that a future not so very far away may reinforce in new railroading his Canadian plans. If it could only have been applied in time to the street railways, what a Niagara of capitalization would have been averted!

For the nine months ending March 31 last the New York, New Haven & Hartford used foreign freight cars so much less than in the same months of the previous fiscal year that its adverse balance decreased from $1,246,098 to $493,976, or about 60 per cent. In March the decrease was 70 per cent. This is a remarkable showing. With the four-days-free limitation imposed by Connecticut law

and with the fixed bad conditions existing in the cotton traffic, the New Haven road had a peculiarly hard situation, and the sharp cry put up by the officers of the road when the per diem exchange rule was forced on them, found sympathetic ears throughout the railroad world. Nobody claimed that the alarm was based on imaginary things. But it is evident that the New Haven people can smite as well as cry. The wonder is that the consignees have not risen in their wrath. It must be that thousands of them have been made to reform their dilatory unloading practices, yet we do not recollect hearing a word of complaint from any one of them. More remarkable yet, we have not heard of a single New Haven freight solicitor complaining that the harshness of the operating department prevents him from getting business. There cannot be much need of softening the penalty rule for the New Haven road, for the 30-day limit will evidently give it, for the most of its foreign cars, about 20 or 25 days more than it needs. Superintendents of other roads, who have become weary in the car-detention fight will do well to sit up and take notice how things are done in Connecticut.

SELF-INCRIMINATORY TESTIMONY.

Before the ratification of the Constitution of the United States could be secured it was necessary to add to it no less than ten amendments which together constitute, in effect, a Federal bill of rights. Among these the fifth contains the familiar prohibition that follows:

"No person . . . shall be compelled in any criminal case to be a witness against himself, . . ."

Judge Cooley in his "Principles of Constitutional Law," says of the first ten amendments that they:

"took from the Union no power it ought ever to have exercised. . . ."

And, in another place in the same book, he speaks of the particular prohibition against compulsory self-incrimination, as follows:

"This was a Common Law principle, and it has been incorporated in the Constitution to prevent the possibility of a recurrence to the inquisitorial proceedings which in arbitrary periods were sometimes had, and which are now admitted in some countries under systems of jurisprudence differing from our own."

In 1868 Congress sought to avoid some of the restrictions attending the prosecution of persons accused of criminal violations of Federal statutes by limiting the effect of the quoted portion of the fifth amendment. To this end a law was enacted (R. S. 860) providing that:

". . . no evidence obtained from a party or witness by means of a judicial proceeding in this or any foreign country, shall be given in evidence, or in any manner used against him or his property or estate, in any court of the United States, in any criminal proceeding, or for the enforcement of any penalty or forfeiture."

The theory of the foregoing was that the privilege of refusing to give self-incriminatory evidence was solely to protect the individual against the use of his testimony against himself in a criminal trial, and that if it could not be so used the privilege could not be set up as an excuse for refusal to respond to relevant inquiries. This notion received further sanction by the enactment of a similar provision as a part of the Interstate Commerce law. Section 12 of the Act of 1887 contained the following sentence:

"The claim that any such testimony or evidence may tend to criminate the person giving such evidence shall not excuse such witness from testifying; but such evidence or testimony shall not be used against such person on the trial of any criminal proceeding."

The foregoing was in such force as its enactment by Congress could constitutionally give it when, on Nov. 21, 1890, Charles Counselman, of Chicago, was before a Federal grand jury, in that city, which was investigating certain alleged violations of the Interstate Commerce law. Mr. Counselman refused to respond to certain inquiries on the ground that his answers might tend to criminate him. Persisting in this refusal the witness was fined $500 and remanded to the custody of the United States marshal until he should answer the questions. A writ of habeas corpus in his behalf was discharged by the Circuit Court and he appealed to the Supreme Court of the United States. The latter court unanimously sustained (see Counselman vs. Hitchcock, 142 U. S. 547) the right of the witness to refuse to testify and directed his discharge from custody. The following is from the opinion, written by Justice Blatchford:

"This, of course, protected him against the use of his testimony against him or his property in any prosecution against him or his property, in any criminal proceeding, in a court of the United States. But it had only that effect. It could not, and would not, prevent the use of his testimony to search out other testimony to be used in evidence against him or his property, in a criminal proceeding in such court. It could not prevent the obtaining and the use of witnesses and evidence which should be attributable directly to the testimony he might give under compulsion, and on which he might be convicted, when otherwise, and if he had refused to answer, he could not possibly have been convicted. The Constitutional provision distinctly declares that a person shall not 'be compelled in any criminal case to be a witness against himself;' and the protection of Section 860 is not coextensive with the Constitutional provision. Legislation cannot detract from the privilege afforded by the Constitution."

This failure did not lead to an abandonment of the attempt to avoid the consequences of the constitutional prohibition adopted by the fathers of the nation. Indeed, the decision merely led to a further step in that direction. It was rendered on Jan. 11, 1892, and on Feb. 11, 1893, a new statute went into effect. This statute, so far as it is material to the present discussion, is as follows:

"No person shall be excused from attending and testifying or from producing books, papers, tariffs, agreements, and documents before the Interstate Commerce Commission, or in obedience to the subpoena of the Commission, whether such subpoena be signed or issued by one or more Commissioners, or on any cause or proceeding, criminal or otherwise, based upon or growing out of any alleged violation of the Act of Congress, entitled, 'An Act to Regulate Commerce,' approved February fourth, eighteen hundred and eighty-seven, or any amendment thereof, on the ground or for the reason that the testimony or evidence, documentary, or otherwise, required of him, may tend to criminate him or subject him to a penalty or forfeiture. But no person shall be prosecuted or subjected to any penalty or forfeiture for or on account of any transaction, matter or thing, concerning which he may testify, or produce evidence, documentary or otherwise, before said Commission, or in obedience to its subpoena or the subpoena of either of them, or in any such case or proceeding."

Subsequently, when the Department of Commerce and Labor was created and the Commissioner of Corporations of the new department invested with powers and duties of investigation concerning other classes of interstate commerce corporations similar to those over railroads possessed by the Interstate Commerce Commission, a substantially similar provision as to this sort of testimony was placed in the new law. Although the validity of these laws has been sharply contested and one of the most learned and distinguished of American jurists held the first one to be unconstitutional the other view has prevailed, and to-day they are unquestionably a part of the law of the land. An extract from the opinion of the Supreme Court, upholding the law, in Brown vs. Walker (opinion rendered by Justice Brown, Justices Shiras and Field dissenting) follows:

"A person who commits a criminal act is bound to contemplate the consequences of exposure to his good name and reputation and ought not to call upon the courts to protect that which he has himself esteemed to be of such little value. . . . If he secure legal immunity from prosecution, the possible impairment of his good name is a penalty which it is reasonable he should be compelled to pay for the common good. If it be once conceded that the fact that his testimony may tend to bring the witness into disrepute, though not to incriminate him, does not entitle him to the privilege of silence, it necessarily follows that if it also tends to incriminate, but at the same time operates as a pardon for the offense, the fact that the disgrace remains, no more entitles him to immunity in this case than in the other . . . while the Constitutional provision in question is justly regarded as one of the most valuable prerogatives of the citizen, its object is fully accomplished by the statutory immunity, and we are therefore of opinion that the witness was compellable to answer."

Since the foregoing decision was rendered it has been reasonable to suppose that the law was in a shape wholly satisfactory to those reformers who freely confess their ability to improve upon the Federal Constitution. At any rate, no complaint has been heard from them until very recently. But lately it has been discovered, as reasonable men might have suspected at the outset, that if an alleged violation of law is thoroughly investigated and all those who know anything summoned to testify concerning it, there will really be no one left who can be prosecuted or punished for the violation. Thus when the Department of Commerce and Labor preceded the Department of Justice in an inquiry, in Chicago, into the doings of the beef packers, and a criminal trial followed, it was found that the first named department had, in the eyes of the law, given an extensive series of "immunity baths," including every natural person whom the law could otherwise have held responsible. President Roosevelt, with accustomed vigor of expression, regards this as a "miscarriage of justice," and clearly thinks it remarkable that the immunity should be held to extend to any one not actually compelled to give testimony; i.e., subpoenæd and put upon oath or affirmation. But there is plainly common sense in Judge Humphrey's conclusion that such an interpretation would extend the especial favor of the law to those who most strongly resist the efforts of the government to acquire information. Even the layman appreciates the fact that if witnesses generally availed themselves of the opportunities to harass and annoy the investigating officers by recourse to strictly legal rights there could be little progress in any inquiry. The consequences of a law which would impel every one asked for information to demand that a

subpœna be issued are quite evident. Nevertheless the administration is urging that what the President deems the correct interpretation of the law shall be fixed by what he is pleased to regard as a declaratory statute. In other words, he would have it provided by law that immunity shall extend only to those witnesses who are regularly subpœnaed and give testimony under oath. Bills to that effect are now pending both in the Senate and House of Representatives. They may pass, but perhaps it would be wiser to go back to the plain rule of the Constitution. There is the ring of genuine truth in what Judge Grosscup said of this constitutional privilege in deciding the case of the United States vs. James. We quote a sentence or two:

"Happily, the day when this immunity is needed seems to be over. It is difficult for us, who live in a time when there are few, if any definitions of crime that do not meet with the approval of general intelligence and conscience, to appreciate these conceptions of our fathers. The battle for personal liberty seems to have been attained, but, in the absence of the din and clash, we cannot comprehend the meaning of all the safeguards employed. When we see the shield held before the briber, the liquor seller, the usury taker, the duelist, and other violators of accepted law, we are moved to break or cast it aside, unmindful of the splendid purpose that first threw it forward. But, whatever its disadvantages now, it is a fixed privilege, until taken down by the same power that extended it. It is not certain, either, that it may not yet serve some useful purpose. The oppression of crowns and principalities is unquestionably over, but the more frightful oppression of selfish, ruthless, and merciless majorities may yet constitute one of the chapters of future history."

THE PERSISTENCY OF RAILROAD VALUES.

It is a fact, unfortunate but inflexible, that at present we have no crucial or even approximate measure of the real value of American railroads as investments, taken in their entirety. It is true that we have returns, accurate enough for general purposes, which show total capital, bonded debt, floating liabilities, and, along with these, statistics of traffic; and, on the other side of the account, cost of construction, equipment and cognate entries. But the basis of return for capitalization and debt is always the par value. It takes no account of variation in actual value from year to year or from decade to decade. The high value of Delaware, Lackawanna & Western stock, between $450 and $500 on the par of $100, goes in equated with the shares of a pauper line. Nor can any real estimate be made. It is true that some States through their tax boards make up, for certain dates, appraisals of stocks of the railroad lines of the State—including the State proportion of interstate lines. But the dates vary, the appraisal is usually below real market prices, and generally no consideration is given to market values of bonds, whether above or below par. So that even in the few States referred to, no precise values of railroad property are reached, and, if they were reached, they would afford no criterion for the whole country. But certain general facts relating to what we may call the persistency of railroad values are steadily becoming conspicuous, and just now, when the railroads are targets of State and Federal legislation, have fresh import.

First, for an example, may be noted for all the roads of the country an increase of the dividend rate in the last 14 years from 1.93 per cent. to what is now probably almost 3.50 per cent., while during the same time the interest rate on bonded debt has fallen from 4.25 per cent. to somewhat less than 4 per cent. The first measures profit, the second the growth of railroad credit; and the two together are infallible tests not merely of existing prosperity—a somewhat relative term often of transient significance—but of firm and solid advance that interprets itself in values. As to those values themselves, by the credential of market price we do not need to cite them for a period of years in long columns of figures. Let anyone take the stock list and schedule the non-guaranteed railroad shares of properties east and west selling near a 4 per cent. investment basis or below. If it be answered that some of those values are affected by prospective stock distributions that raise the investment return, does not that very fact emphasize confidence on the part of capital in future railroad values? Just now there happens to be a plethora of new issues of railroad bonds, somewhat depressing the price by the inexorable law of supply and demand. Hence a new tendency, along with other devices, toward the convertible bond idea. The convertible bond is necessarily a bit speculative. But, quite apart from that lure for the holder, does not the extensive issue show as a sentiment not merely of Wall Street, but of the investing public, a belief in the future of the American railroad?

That belief enlarges when one looks back on the obstacles to value which the American railroad has had to overcome. We need not hark far away to such historical episodes as the granger movement of the early seventies, or the panic and crisis of 1873 and the "long drag" of five years following it, but confine ourselves to the last decade and to novel factors not connected with stress in the money market. There has been in the foreground the rise of the electric railway—which, particularly in the East and Middle West, for several years in considerable areas of business cut local steam railroad passenger traffic down to the roots. In the case of the New Haven system, for a sample, it for a long time checked absolutely the growth of steam passenger traffic. Another comparatively recent and still increasing influence not yet fully realized outside of railroad circles has been, and is, what may be termed the new urban terminal necessity. The expanded fixed charge due to new terminals, freight and passenger, in our great cities, without any important coefficient of resulting increase of business for many years to come, stands very high in the railroad liability scale. If we could compute it, interesting also would be the power of the long-distance telephone as an absorbent of passenger traffic. To these we must add hostile and restrictive legislation, never more marked than during the last few months; and, finally, those tricks of high finance which have played fast and loose with the capitalization of great railroad systems, and the competitive demand for new capital by the great group of industrial corporations, not to mention the street railways.

What have been the leading and efficient causes why such obstacles to railroad value have been overcome are obvious enough. Consolidation, economy of operation relative to volume of traffic, better mechanical work on the line and office efficiency, and, pervading all, a remarkable stimulus of national prosperity and production, are things that need only to be named. It is less a marvel, perhaps, that with such forces at work the railroads should have surmounted drawbacks than that they should have distanced them so completely and gone far ahead on the road of rising values. Of ulterior influences, however, making for solid railroad values is one of a psychological rather than visible character, but not less potent because it is obscure. We all know how, in certain large regions covered by strong railroad systems like those of the New Haven, the Pennsylvania and the New York Central in the East and the St. Paul, the North-Western and old Burlington & Quincy in the West, the name of the local system has been a synonym for fiscal strength and confidence. The corporate title attached to any extension or any security has been enough to carry financial persuasion alike to banker, broker, the large and small investor and even to the familiar "widow and orphan" with funds to place. Now, a striking feature of the last decade has been the extension of this localized confidence of the investing public in a particular system to a much more general confidence of the same sort to the American railroad system as a whole. In an unconscious but very real fashion the public, seeing the railroads weathering one adverse influence after another, has come to realize the fundamental nature of transportation as a business and the institutional character of the railroad. We have had steam railroads in this country for some seven full decades. But in no period have we seen the sentimental factor of value so developing and so strong as during the last ten years, and especially so during the last five.

The appraisal of this sentiment as a railroad asset must be very high, and not less exalted because it cannot be expressed in exact terms. Will the future of the railroads dissipate or confirm it? That depends, we think, less upon the strain of events during hard times and "long drags" yet to come, and certain to come, than on the policies of railroad managers and the "great" capitalists during periods of prosperity. If, on the one hand, we are to have high finance, flashy speculation on a vast scale, bonding of old stocks and bonusing of new stocks "for purposes of control," we shall have one sequel and a sinister one. If, on the other hand, the general railroad policy is preservative and conservative, at once far-sighted and economical in physical and fiscal administration, obedient to good law and resisting bad law, not by subtle evasion but by open contest in the courts, we shall have quite another sequel. The outcome, we repeat, depends not so much on general events as on railroad policies, and the corporations themselves will have to answer the long time question whether railroad values, so presistent and so triumphant through obstructions during the last decade, are to reach far, forcefully and beneficently into the years ahead.

April Train Accidents.

The condensed record of the principal train accidents which occurred in the United States in the month of April, printed in another column, contains accounts of six collisions, 21 derailments, and five other accidents. Those which were most serious, or which

are of special interest by reason of their causes or attending circumstances, occurred as follows:

April	Place.	Killed.	Injured.
17th	Richmond, Ky.	3	5
27th	Chalco, Neb.	0	5
29th	Reid, Mont.	2	3
30th	Forks Creek, Colo.	0	21

April maintains its reputation as the lightest month in the year in the accident record, and we find in the present list no accident in which a passenger was fatally injured. The length of the foregoing list of prominent accidents is exactly the same as that of the similar list printed one year ago. Two years ago there were only three in the list, though there were six passengers killed. Three years ago there were only three accidents in the list, but there were four passengers killed. The accidents in to-day's list are notable more for their peculiarities than for their magnitude. The accident at Wister Junction, Ind. T., on the 3d, when three passenger cars were ditched and one overturned, seems notable on account of the small number of passengers injured (10); and all of the injuries are reported as slight. Likewise in the accident at St. Michael, Neb., on the 5th, where seven well-filled passenger cars were derailed, only four passengers were reported injured. The rear collision at New Florence, Pa., on the 17th, also belongs, apparently, in this class of lucky accidents. Two other accidents, those at Swanton, Md., and Statesville, N. C., may perhaps be included among the notable cases, although we have no particulars beyond those we print.

The number of electric car accidents reported in the newspapers in the United States in the month of April was 16; in which two persons were killed and 82 injured.

So far as can be judged on the surface, it is quite evident that few members of Congress take any intelligent or active interest in the question of preventing collisions; of lessening the great loss of life by train accidents on the railroads of the United States. This being so, the joint resolution introduced by Representative Mann, of Illinois, directing the Interstate Commerce Commission to investigate the question of block signals, is to be commended. Whether it is or is not desirable to enact compulsory legislation on this subject, there is no question that the matter ought to be aired. More than two years ago the Interstate Commerce Commission reported that the great loss of life in collisions was preventable by the use of the block system, and the opinion was made definite by a draft of a proposed law. A year later Mr. Esch, of Wisconsin, introduced his bill, embodying the recommendations of the Commission, and proposing to require the use of the block system on all roads in from two to five years. No action was taken by Congress and this year Mr. Esch has introduced his bill again. By reason, apparently, of the rate-bill disturbance block signals still remain buried, and Mr. Mann's resolution evidently aims at arousing interest in another way. The Interstate Commerce Commission has since repeated its warning of two years ago, and with added emphasis, but collisions continue. Reports of the death of five, ten or more persons at a time in a collision continue to blacken the pages of the *Railroad Gazette* every month or two. It will be a good thing to put the facts of the situation on record in formal shape. If the Government is not going to investigate accidents directly it may usefully do so indirectly by gathering and systematizing the reasons why some railroads have adopted the block system and why others have not; why block signals are introduced on lines where passengers have been killed and the time-interval retained on lines where the killing is yet in the future.

The Supreme Court of the United States has affirmed, by a divided court, the decision of the Circuit Court for the Northern District of Ohio in the interstate commerce suit known as the hay rate case. The case grew out of the change of hay from the sixth to the fifth class by the railroads in Central territory, and the Interstate Commerce Commission applied for an injunction forbidding the enforcement of the higher rates. This the Circuit Court refused to grant, and the Supreme Court now sustains that action. Justice Holmes declined because of his interest in one of the roads involved to take part in the decision. There was no written opinion. The decision of the Interstate Commerce Commission in this case (reported in the *Railroad Gazette* Oct. 31, 1902, page 842), was written by Commissioner Clements, and was based on a long and involved statement which might well be expected to divide the Supreme Court, or any other body of nine judicial-minded men. The value of hay at the point of shipment, the total volume of the traffic, the profit to the carrier as compared with that on grain, the interests of the middlemen, the effect of the duty on Canadian hay, the rights of consignees as affected by the long time the sixth class rate had been in effect, and many other things, tangible and intangible, were solemnly discussed and—then the occult decision was issued. The higher rate was held unreasonable. This case would be a good one to use in a moot-court exercise with which to try the Hepburn bill when it becomes law. It would afford a fine opportunity for showing how a judge can exercise his "judgment" in a case and yet not exercise it. Commissioner Clements would be held by any critic to have exercised his judgment (or his guessing faculties), in this case for no critic could deduce from the facts which were marshalled in the opinion anything remotely resembling a rule for making a rate on hay. On the other hand, the honorable commissioner's dictum that such and such rates were just would be thoroughly impregnable without any mention of judgment; and this for the very same reason that sustained the previous conclusion—that no one could find any way to introduce "judgment" or anything else to support a countervailing opinion.

In a debate before the Nineteenth Century Club, President Hadley began by saying he was not willing to discuss the question, "Are Trusts Injurious?" but was willing to speak to the question, "Are Trusts Dangerous?" Old Sledge, he said, is a good game of cards; it is not very dangerous. Poker is a better game; it is quite dangerous; it is better because it is more dangerous. In any city the ideal telephone system must be either a monopoly, or else be conducted under an agreement by the competing companies to permit free communication between subscribers to either. Such an agreement was tried for five years (1877-1882) in the city of New York, and was found to be so costly that, with rates to subscribers higher than now, there was little return on the capital. Throughout Great Britain the Post Office Department operates telephone systems and has permitted competition by a rival, the National Telephone Company, but always with compulsory free interchange. The cost of this has compelled undue economies in operation, has prevented the installation and use of improved exchanges, and the service is so dilatory and exasperating that the Government has now set a date for taking over the private lines, and no competition will hereafter be allowed. Two exchange systems in any one locality compel many users to subscribe to both of them, and afford incomplete service to all who do not do this. It is almost as wasteful as to permit rival street car companies to operate in the same streets.

The Erie Railroad has been taking a letter ballot and finds that only 11 per cent. of its suburban passengers going into New York City use the Twenty-third street ferry. (The number voting was 10,836.) As that ferry has been running many years one may well believe that, as an Erie officer says, lower Manhattan is growing up in the air—not up town. At all events it seems to be trying as hard as it can to stay below Chambers street. The vista of tall buildings from any high window south of the city hall is now absolutely bewildering in its magnitude. Evidently, the same influences that drive people from country to city tend not only to keep them in it after they get there but to drive them with a constant force toward the center of the city; that is to say, in this case, the business center. When the horizontal pressure meets impassable resistance it turns upward, like the gravel which railroads drop into sunken lakes, only to see it rise in the swamps at the sides of the track. How conclusive these Erie figures may be we cannot tell. Undeniably there has been an important movement of business northward, as is shown by the tall buildings on Twenty-third, Forty-second and other streets above Union Square. Possibly the traffic statistics of the West Shore Railroad, which lands its passengers by a short ferry at Forty-second street, would show a growth quite different from that of the Erie. The Erie ferry to Twenty-third street is a long one while its older ferry to Chambers street is a short one. But the most interesting part of the Erie announcement is the fact that an actual vote was taken on a matter affecting public service. We do not know what specific use the Erie officers mean to make of this vote; whether they intend to increase downtown facilities, decrease uptown facilities, or do neither of these things, but they have made their commuting customers put themselves on record as regards the relative importance of the two services. It seems as if this might be a useful precedent in many cases where there are traffic majorities and minorities to be dealt with.

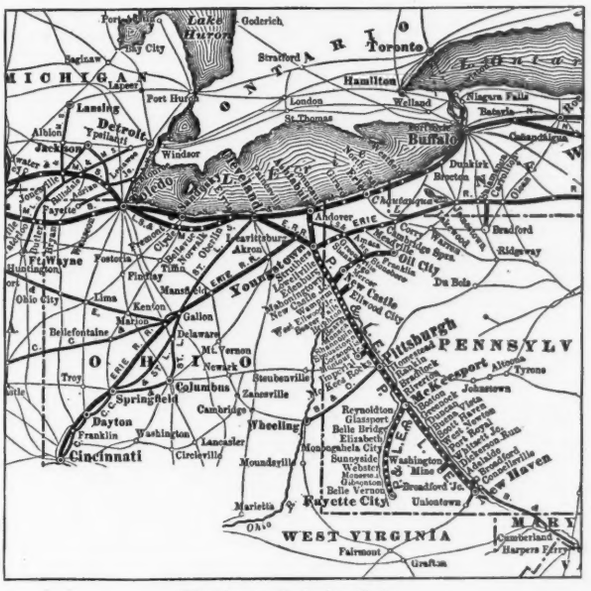
The continued remarkable activity in all kinds of business is leading to important increases in passenger facilities. On the adoption of the summer time-table the New York, New Haven & Hartford is to put on an additional five-hour limited train each way between New York and Boston. The trains will leave each city at 8 a.m. This makes the fourth train between these cities on which the fare, including parlor car seat, is $7 (one dollar more than on ordinary trains). The other five-hour trains start from both ends of the route at 10 a.m. and 1 and 5 p.m. The New York Central is to have a new train between New York and St. Louis and the Big Four is to have an additional fast train between Cleveland and Columbus. The Chicago, Burlington & Quincy is to put on a new through day train from Chicago to St. Paul, starting at 9 a.m., and a new through night train from St. Paul to Chicago, starting at 10.30 p.m. On May 19 the Northern Pacific put on a third through train between St. Paul and Seattle, at the same time

equipping its present "North Coast Limited" with new cars. The Pennsylvania Railroad is to put on a number of additional fast trains between New York and Philadelphia and one between New York and Pittsburg. Some notes concerning the fast trains on the Pennsylvania Railroad and the enormous growth of the company's traffic, may be found in another column. The new Pittsburg trains are to travel all the way at 50 miles an hour or faster, almost as fast as the Chicago 18-hour trains.

Pittsburg & Lake Erie.

The Pittsburg & Lake Erie is an exceptional railroad. With a total of 191 miles operated, of which only 68 miles is listed as main line, it has gross earnings of over $12,800,000, or $67,825 per mile, the highest figure of any important American railroad. The main line runs from Pittsburg northwest to Youngstown, just across the Ohio line, and furnishes the New York Central Lines an entrance into the Pittsburg traffic territory. The road also runs through the great manufacturing district south of Pittsburg, and near McKeesport separates into two branches, one following the windings of the Monongahela and the other of the Youghiogheny river, these lines penetrating a coal and coke territory.

The income account is a remarkable showing. Freight earnings increased from $8,800,000 in 1904 to $11,500,000 in 1905. They furnished most of the increase of $2,800,000, or 28 per cent., in gross earnings. Operating expenses, to offset this great increase in gross, grew by only $207,600, or less than 4 per cent. On this basis the operating ratio was 43.4 per cent. It is, however, given in the report as 77 per cent., owing to the system now adopted as standard in reports of New York Central roads, of including in total expenses, new construction (additional betterments) and new equipment (additions). These two items together amounted to $4,310,707, of which $2,400,000 was for new construction and $1,900,000 for new equipment, principally freight cars. The net earnings given in the report, after deductions of these expenses for additions, were $2,950,000 against $2,314,000 in 1904. The real net earnings, however, show very different figures, amounting to $7,260,000 in 1905 and $4,666,000 in 1904, an increase of over 50 per cent. ($2,614,562) in net earnings after ordinary operating expenses. There was an increase of 21.57 per cent. in net earnings after addition betterments. The net income was $2,142,927, and dividends required $1,000,000, leaving a surplus for the year of $1,142,927, an increase of $670,000 over the previous year. The surplus was in large part credited to profit and loss, making the profit and loss surplus at the end of the year $7,319,552, against $6,180,318 on Dec. 31, 1904.



Pittsburg & Lake Erie.

This is a most unusual showing, and at once suggests the exceptional nature of the Pittsburg & Lake Erie's traffic. For a road with 191 miles operated to appropriate well over $4,000,000 for extraordinary expenditures in one year is most remarkable. It can be due only to a very high traffic density. As a matter of fact, the freight density last year was 8,828,236 tons one mile per mile of road, an exceptional figure. The freight density of the heaviest traffic division of the Pennsylvania is 6,335,638. Freight density increased 1,827,168 tons one mile per mile of road over the previous year, or several times as much as the freight density of many railroads. The total tonnage of 24,900,574 revenue tons (an increase of nearly 5,000,000 tons over 1904) was made up almost entirely of bituminous coal, which furnished 9,500,000 tons; coke, 4,800,000 tons; ores, 3,460,000 tons; stone, sand, etc., iron (pig and bloom), castings and machinery, bar and sheet metal, and other manufactures. Strangely enough, as compared with the experiences of most other roads, last year miscellaneous commodities decreased from 984,642 tons in 1904 to 657,105 tons in 1905, a loss of one-third in presumably high-class traffic. It is necessary to take the heavy tonnage figures and the short main line into consideration to make reasonable the size of the train load, which amounted to 1,076 tons of revenue freight and 1,107 tons of all freight; the former an increase of 64 and the latter an increase of 68 tons over the preceding year's loading. The average number of tons per loaded car was 30 and the average freight train carried 61 cars.

Freight earnings were $60,707 per mile of road, an increase of $14,357; and passenger earnings, $7,118 per mile. The 68 miles of main track, Pittsburg to Youngstown, includes a like amount of second track, 24 miles of third track, 16 miles of fourth track and 194 miles of sidings, a total of 370 miles of track on 68 miles of line. Extension of the third and fourth tracks is steadily under way. Naturally, maintenance of way expenses are exceptionally heavy, being $7,000 per mile of road, or nearly $20,000 per mile of main line. Repairs and renewals cost $2,072 per locomotive in 1905, against $2,005 in 1904; per passenger car $537, against $449 in 1904, and per freight car $52, against $53 in 1904. Although the freight car maintenance figure is not high, the fact that 1,000 steel gondolas, two 150,000-lb. capacity flat cars, and four caboose cars were acquired during the year, less 76 cars destroyed or sold, increasing the freight equipment 930 numbers, shows that equipment was by no means neglected. For delivery during the present year five passenger, five freight and three switching locomotives, 14 passenger cars, 250 low side gondolas, 1,000 steel gondolas, 1,000 steel coke cars and 1,000 box cars have been ordered. As a heavy traffic road it may be interesting to compare results of operation on the Pittsburg & Lake Erie with those on the Bessemer & Lake Erie, which are reviewed below.

The principal statistics of operation follow:

	1905.	1904.
Mileage worked	191	191
Freight earnings	$11,576,738	$8,838,911
Passenger earnings	1,137,817	1,063,964
Gross earnings	12,837,736	10,035,510
Maint. way and structures	1,333,963	1,385,495
Maint. of equipment	1,276,144	1,221,741
Conducting transportation	2,777,735	2,585,059
Operating expenses	5,576,918	5,369,253
Net earnings	7,260,818	4,666,256
Addition betterments	4,310,707	2,352,389
Net income	2,142,947	1,472,890
Surplus	1,142,927	472,890

Bessemer & Lake Erie.

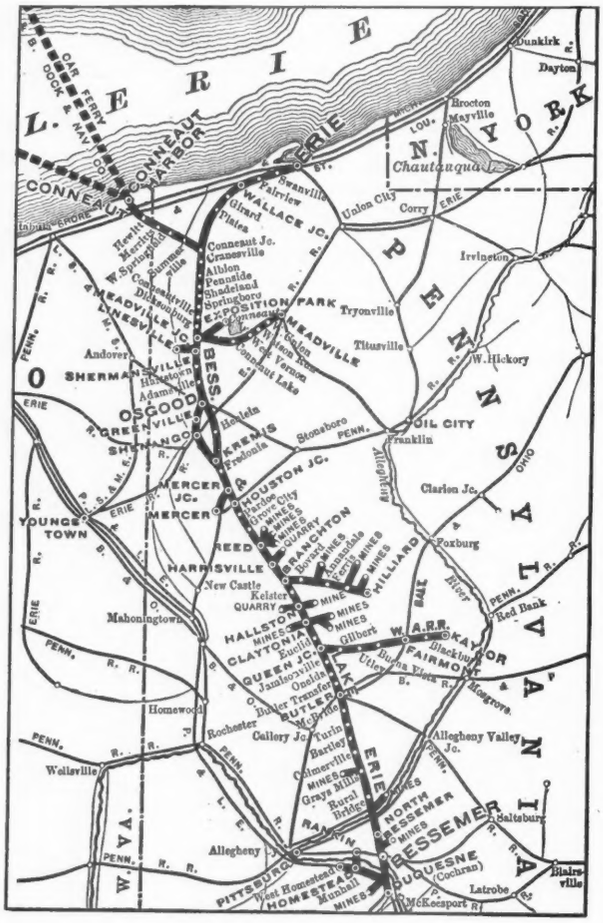
This road, the property of the United States Steel Corporation, is used for carrying ore from the corporation's lake port of Conneaut, Ohio, south to its various mills in the region around Bessemer and Homestead, Pa. The main line from Conneaut to Bessemer is 152 miles long. The average mileage operated, not including the Western Allegheny Railroad, shown on the map, nor seven miles of line leased to the Union Railroad of the United States Steel Corporation, is 212 miles. Like the Pittsburg & Lake Erie, reviewed in this issue of the *Railroad Gazette*, the road's traffic is exceptional. The number of tons of revenue freight carried one mile in 1905 was 1,172,794,522. This was an increase of 284,556,179 ton miles, or 32 per cent. over the previous year. The freight density was 5,748,147 tons one mile per mile of road, an increase of 1,394,678 over the preceding year, an increase, like that of the Pittsburg & Lake Erie's, far larger than the total freight density of many railroads. But the most striking figures covering the road's operation are those of train loading. The average revenue train load last year was 937 tons, a decrease of 16 tons from 1904. This is not as high as the Pittsburg & Lake Erie average figure, but further figures are given of the average train load north and south bound. The north bound loading in 1905 was 470 tons, an increase of 24 tons over 1904, while the average train load south, although it showed a decrease of 31 tons from the previous year, reached the remarkable figure of 1,406 tons.

For a 212 mile road, only 50 miles of which is double track, these are wonderful figures. The General Manager speaks of the fact that for a single track line with a tonnage of nearly 10,000,000 tons the limit of economical operation is about reached, as the number of trains required overtax the capacity of the single line. Last year 18 miles of double track was laid, and by the end of the present year 19 miles more is to be finished, so that by that time nearly half of the main line will be double tracked. It is the hope of the management to have the double tracking of the whole main line finished within the next two years succeeding.

Freight earnings increased from $3,877,000 in 1904 to $4,998,000 in 1905, a gain of 29 per cent. Smaller increases in the other sources of earnings brought up the increase in gross to $1,130,546. With the much larger amount of traffic carried (2,298,000 revenue tons) it is

interesting to observe that with the gain of 26 per cent. in gross earnings, net earnings increased 29 per cent. The operating ratio decreased from 50.14 per cent. in 1904 to 48.99 per cent. in 1905, figures which show how economically a road can be operated when such large quantities of traffic are available. Freight earnings were $24,500 and passenger earnings $1,424 per mile of road, a total of $25,924 per mile of road.

Expenses for maintenance of way and structures increased $118,000; for maintenance of equipment, $154,000, and for conducting transportation, $221,000. The total increase in operating expenses was $504,484. Per mile of road, maintenance of way shows its increase more clearly, the unit figure rising from $2,205 per mile in 1904 to $2,760 in 1905. Per unit of equipment, repairs and renewals cost $2,006 per locomotive, against $1,937 in 1904; $600 per passenger car, against $526 in 1904, and $42 per freight car, against $34 in 1904. Twelve new locomotives were put in service last year. The 1,678 wooden gondolas owned are, according to the General Manager, beginning to show signs of depreciation and are becoming unfitted for ore traffic. Although they will for some time be available for coal and miscellaneous freight, an equivalent tonnage in steel cars



Bessemer & Lake Erie.

will shortly have to be provided for the ore tonnage. During the year 30 wooden gondolas were converted into flat cars.

The passenger earnings were $263,436, or $1,424 per mile of road. The average distance traveled was 24 miles; the average amount received from each passenger, 42 cents, and the average passenger mile rate, 1.74 cents. This last is a decrease of 0.10 cents from the 1904 figure. The average number of passengers per train mile shows a large increase, from 34 in 1904 to 42 last year. The passenger, mail, and express earnings per train mile were 80 cents against 70 cents in 1904, an increase of 10 cents, or 14 per cent.

Considering freight traffic statistics more in detail, the number of tons carried, including company freight, was 9,749,841, an increase of 2,389,591 over 1904. The total ton mileage was 1,187,797,528, an increase of 290,924,967 tons over 1904. This is a 32 per cent. increase. Two-thirds of the tonnage was southbound. Of the total revenue tonnage of 9,505,439 tons, ore furnished 5,820,268 tons, and other freight 3,685,171 tons. The average number of tons of revenue freight per freight engine mile (including assistant engines) was 637 tons, against 604 tons in the previous year; showing that, although there was a decrease in the average train load, fuller service was obtained from the locomotive equipment. The Bessemer & Lake Erie is handicapped at certain points by grades which require helper service, so that its operation is not as economical as might be possible. On the other hand, the heaviest types of locomotives and the largest capacity cars in general use are in service.

Figures are given for the cost of repairs of wooden and steel cars separately. The average cost for the wooden cars was $71.14 against $58.31 in 1904; the increase no doubt due to the increasing age of the wooden equipment. Per steel car, repairs cost $27.83 against $23.52 in 1904. Unfortunately, these figures do not establish any uniform basis of comparison on account of the different age of the cars. There were 116 wooden cars rebuilt, at a cost of $37,682, or $325 per car, and two steel cars rebuilt at a cost of $896, or $448 per car.

The report records that during 1905 there were brought from the Homestead Works of the Carnegie Steel Company 25,000 steel ties and fastenings, most of which were placed in track during the year. In the fall of 1904 one-half mile of steel ties was laid and thoroughly tested. These held up satisfactorily under the heavy traffic of 1905. For the present year's requirements 80,000 additional steel ties have been bought; a total of 105,000 on the road, weighing 9,550 tons and sufficient for 42 miles of track.

The principal operating statistics follow:

	1905.	1904.
Mileage worked	212	212
Freight earnings	$4,998,613	$3,877,547
Passenger earnings	263,436	237,742
Gross earnings	5,407,691	4,277,146
Maint. of way and struc.	585,120	467,371
Maintenance of equipment	667,731	513,397
Conducting transportation	1,305,561	1,084,088
Operating expenses	2,649,097	2,144,613
Net earnings	2,758,595	2,132,533

No further income figures given.

General Electric Company.

The total profits of the General Electric Company for the year ended Jan. 31, 1906, after a deduction of all patent, general and miscellaneous expenses, allowances for depreciation and losses, and $1,800,000 from factory plants and machinery account, were $7,300,000, against $6,700,000 in the previous year. They included $173,000 received from securities sold and $798,000 received from royalties, dividends, etc. Dividends amounting to $3,800,000 were paid, leaving the year's net profit $3,458,000. From this was deducted $1,000,000, 50 per cent. of the patent account written off, leaving the year's surplus at $2,458,000, which, added to the surplus at the end of the preceding fiscal year, gives the company a total profit and loss credit of a little over $12,000,000. The $1,000,000 written off patent account corresponds with $594,000 written off in 1904.

With a great manufacturing company like the General Electric allowances such as these for accounts written off and depreciation are of the utmost importance in determining its real financial position. That the General Electric Company has been conservative in this respect can be shown from the record of the balance sheet account "factory plants" for the past 13 years. On Jan. 1, 1893, the book value of the Schenectady, Lynn and Harrison plants was $2,950,000. During the 13 years since that date, besides all ordinary maintenance expenditures, additions have been made at a cost of $19,400,000, making the total book cost of the plants $23,370,000. During the same period there has been written off for depreciation $15,370,000, leaving the book value of the plants at the close of the last fiscal year $8,000,000. The practical effect of this process can even better be shown by the figures for the last two years. The total additions of lands, buildings, machinery, etc., during 1905 added $2,338,000 to the book value of the plants. At the same time, allowances for depreciation were written off which made the increase in the book value at the close of the fiscal year only $500,000. Of this, $300,000 is in the Schenectady plant and $200,000 in the Lynn plant. The size of the company's business for the past year as well as the more than $2,000,000 added to value of plants make it clear that depreciation has been liberally charged off.

The total sales, i.e., the amount billed to customers, were $43,146,000, or about $4,000,000 more than for the previous year, an increase of about 10 per cent. The total orders received amounted to $50,000,000, as against $35,000,000 in 1904, an increase of 14 per cent. Sales in 1895 amounted to $12,700,000. There has been an average increase of 13 per cent. a year for the intervening 10 years. The amounts for both sales and orders are the record figures in the company's history, surpassing in both cases the previous high record made in the year ended Jan. 31, 1904.

A commendable feature of the report is the analysis, item by item, of the various entries on the balance sheet, showing in considerable detail the facts on which these figures are based. This exhibit is lacking, however, in details of the amounts of stocks of security holding and other companies held. For example, the United Electric Securities Company, of Boston; the Electric Securities Corporation, of New York, and the Electric Bond & Share Company, of New York, the last an acquisition during the year which has taken over the Stanley Electric Manufacturing Company, are grouped under one item: "Stocks of security holding companies," $5,991,375.

The General Electric Company's capital stock outstanding has increased during the year from $48,248,000 to $54,287,000, most of the new stock having been issued for cash to stockholders at par. The total stock now authorized is $60,000,000.

Orders are reported for over 300,000 h.p. of heavy traction motors (from 125 h.p. to 200 h.p. capacity) such as are used on the New York elevated and subway, the London underground and the Metropolitan underground of Paris, usually operated in conjunction with the Sprague-General electric train control system. There were on January 31st, 4,026 cars equipped with the Sprague-General Electric control against 2,997 cars so equipped one year earlier. Orders for all railroad motors for the year were about 750,000 h.p. capacity. Several contracts have been taken for single-phase alternating current railways similar to the car placed in operation in August, 1905, between Schenectady and Balston, N. Y., the first single-phase alternating current car put in commercial operation in the United States. These include the Pontiac & Joliet Railway, the Toledo & Chicago Interurban Railway, the Milwaukee Electric Railway & Light Company, the Central Illinois Construction Company, the Richmond & Chesapeake Bay Railway, and the Anderson (S. C.) Traction Company.

The first of the 35 New York Central 100-ton locomotives has during the year undergone a mileage test on the experimental track west of Schenectady. The total mileage run to January 31 was 29,568 miles. On April 2d the total was 40,324 miles. Maintenance cost, as reported by the railroad company, has been only about one-fourth of the average maintenance cost of a steam locomotive. Actual running time of the locomotive was 172 days, during which the average daily run was 171 miles. The maximum for a day was 347 miles in 8 hours and 45 minutes.

Successful long distance transmission of electricity has resulted in a great increase in the number of such plants, electrical energy in some cases being transmitted over 100 miles. Even greater distances are now considered practicable. Two interesting examples are the Kern river development, where four 7,000 h.p. General Electric generators are being installed for transmitting electric power 115 miles to Los Angeles, Cal., and that on the Jhelum river in Kashmir, India, where 5,500 h.p. of electric generators are to be used to transmit power about 60 miles for industrial purposes, and eventually for the operation of 156 miles of electric railway. Perhaps the most notable contract taken during the year is for the electrification of the West Jersey & Seashore division of the Pennsylvania between Camden and Atlantic City, 64 miles; the first instance of the electrical equipment of an important steam railroad from terminus to terminus.

NEW PUBLICATIONS.

Railways of the Future. A series of articles appearing in *Scribner's Magazine.*

In the April issue of *Scribner's Magazine* there appears the first article of this series. It deals with the proposed Pan-American Railroad, projected to link up a connection between the existing railroad system of Mexico and the existing railroad systems of South America, so that passengers and freight can be carried through from New York to Rio de Janeiro or Montevideo. In the May number Lieutenant-Colonel Sir Percy Girouard describes the railroads of Africa. In Africa and in South America alike there is a continent to be traversed before a north and south connection can be established, and in Africa and South America alike water competition, to mention only the first and most obvious thing, renders it wholly unlikely that such through rail connection will be established within the memory of the grandsons of any one now living. Such systems must come to pass not from the illusory through traffic, which can be moved so much more quickly and so much cheaper by water, but from the gradual development of points of local traffic, generation after generation, which will eventually come together. But if the reader is firmly convinced that neither one of these "railways of the future" will ever be built, he will nevertheless be repaid by reading the papers, which excellently describe the existing systems, or so-called links, and which are illustrated most entertainingly, especially in the case of the so-called Pan-American project, where the author has shown some of the bewildering scenery of the Peruvian Andes.

Questions and Answers. By G. E. Collingwood; 110 pages. Toledo: The Train Despatchers' Bulletin. Price, $1.00.

This book is now issued in its fourth edition. It is a catechism, with questions numbered up to 622, on the standard code of train rules. It has the well understood defect of not fitting the practice of any particular road, but that is inevitable, for there is no way to manage the difficulty, unless one is to go thoroughly into details and reasons, as Mr. Forman has done—and this book is far narrower in scope than Forman's. But almost any catechism is preferable to none at all, and the student who does his own thinking and carefully compares Mr. Collingwood's dicta with the requirements of his own road, can get many useful ideas from this little book. Its small size, 4 in. x 5¾ in., is in its favor, but to reduce it to this size the type was made too small. Twenty-five pages are taken up with reprints of Rulings of the Train Rule Committee of the American Railway Association.

CONTRIBUTIONS

The Clover Creek Junction Collision.

Altoona, May 22, 1906.

TO THE EDITOR OF THE RAILROAD GAZETTE:

Although, as is well said in the note printed on the first page of our last issue, the remedy for collisions like that at Clover Creek Junction is the universal adoption of the block system, your readers will nevertheless be interested in some of the details of the causes which led up to that collision as they were brought out at the inquest held last week and this week in this city. Testimony was given by the train despatchers and operators interested, by the conductor and the engineman of the eastbound train, by the other trainmen, and, finally, by Pilot J. D. Dougherty himself, on whose shoulders rested the chief responsibility for the collision, he being the only man on train No. 21 who was fully acquainted with that division of the road on which the collision occurred.

There appears to be no doubt that Engineman Dougherty has practically admitted the chief or the whole responsibility, as was reported in the press despatches a day or two after the collision, but yet, the evidence shows something very like contributory negligence on the part of others. The section of single track on which the collision occurred extends from Springfield Junction (S J) on the west to "S T" tower on the east. The pilot boarded the westbound train at Huntingdon, a short distance east of the point where it was to leave the main line for the branch. At Petersburg, the junction with the branch, an order was delivered to the conductor, the engineman and the pilot "to run as an extra from Petersburg to S T." At S T the train stopped and the pilot sent the fireman back to see if the conductor had received further orders. The fireman found that none had been received and then the pilot himself went back to see the conductor. Returning to the engine the pilot informed the fireman (and presumably the engineman) that the orders read S J and not S T. The train-order signal showed white and the switch was set right for the train to enter upon the single track. The train proceeded and soon came into collision with No. 18.

The testimony of the conductor of No. 21 appears to be somewhat confused, but it would seem that being unacquainted on the branch he depended wholly on his time-table for his knowledge of the location of the stations. He examined the table, found a station S J but did not find any S T, and therefore concluded that the T, which, it is said, "could be mistaken for a J" was meant for J. The pilot, knowing that there were two stations with the two names, appears to have too readily accepted this explanation.

Engineman Dougherty read to the jury a written statement in which he endeavored to explain how others than himself ought to share the responsibility. He emphasized the fact that at S T he received a "clear block" (meaning the clear train-order signal), and that some one at the switch with a hand lamp gave him the signal to move forward. He proceeded at a low rate of speed and so was able to see the opposing train a few seconds before he hit it; and had succeeded in bringing his train nearly to a stop before the collision occurred.

Dougherty has been an engineman 33 years, and is a regular passenger runner. How can we explain such an unfortunate lapse by a man of such long experience? In starting from S T at low speed, Dougherty, apparently, was actuated by his doubt whether the train order actually did mean S J; but what could have led him to thus resolve the doubt on the side of danger instead of the side of safety? Surely the rule forbidding this must have been read by him a hundred times.

K. M.

President Cassatt and Rebates.

In 1899 a committee of Pennsylvania directors offered A. J. Cassatt the vacant Presidency. It was a critical time. The rebate system had so fastened itself that the freight receipts of the Pennsylvania had sunk to the lowest ton-mile rate in its history. Expenses could be reduced no further; nothing could save the Pennsylvania position but expansion.

Cassatt's first characteristic act was to stop all secret rates and rebates. At the same time he won over Vanderbilt, so that the New York Central became a supporter of the war against discrimination. Standard Oil had its pipe lines and was no longer a factor; but there was Andrew Carnegie, chiefest of the rebaters. He shipped $10,000,000 of freight a year over the Pennsylvania, the rebates alone on which ran up to great sums. Carnegie protested in vain. Then he threatened a line from the west through Pittsburg to the sea that would destroy the Pennsylvania primacy. There was no man better able to understand that threat than Cassatt; but he had planned out his fight and summed up his resources, and he summarily refused Carnegie. That was the decisive moment

in the real war against secret rates. Everything since has been merely an echo of Cassatt's historic reply.

It was in this work of exterminating secret rates that Cassatt applied the "community of interest" scheme. Quickly, also, he reached out for control of one road after another. He secured the Long Island and control of Baltimore & Ohio, Norfolk & Western and Chesapeake & Ohio, established intimate affiliations with the Vanderbilts, and became a director in the New Haven. In seven years he spent over $200,000,000 and bought over $150,000,000 stocks of other companies. All this time he set his face against secret rates and persuaded the heads of other systems to follow his example.

Mr. Cassatt said to me a few weeks ago: "I have for several years believed that the Interstate Commerce Commission ought to be in a position to fix rates whenever unreasonable rates are found, provided there shall be right of appeal to the courts. Let the government regulate us. For my part, and for my associates, we are generally heartily in accord with the position of President Roosevelt. But it is equally important that the people should recognize the grave necessity for greater harmony of action and interests between the railroads. We have trampled out the secret rate and rebate system, and it can never be revived again unless the railroads are prevented by unwise legislation from maintaining such relations as will ensure reasonable and stable rates."—*James Creelman, in Pearson's Magazine.*

Comparative Locomotive Efficiency.

According to Mr. Thomas McHattie in an address before the Canadian Railway Club, the Grand Trunk Railway has been conducting a series of tests for the determination of locomotive efficiencies. The comparison was made between a simple class mogul engine 20 in. x 26 in. cylinders, 63 in. driving wheels, carrying 200 lbs. steam pressure, with a long narrow firebox having 33.43 sq. ft. grate area, which has been taken as a base in making the comparison, and a two-cylinder compound class mogul engine, 22½ in. and 35 in. x 26 in. cylinders, and the diameter of wheel, the steam pressure and the grate area the same as on the engine before mentioned; they were practically sister engines with the exception of the compounding feature.

The third engine put under test was also one of the two-cylinder type mogul class, sister to the former engine, with the exception that it was one of the semi-wide firebox class with 41.51 sq. ft. of grate area. The steam pressure, size of cylinders, and the diameter of driving wheels were the same as the previous engine mentioned.

The fourth engine under trial was a consolidation two-cylinder compound class, size of cylinders, 22½ and 35 in. x 32 in., diameter of driving wheels 57 in., carrying 210 lbs. steam pressure, and having a firebox with 53 sq. ft. of grate area.

Each engine was submitted to the test for six consecutive days. All engines were given the same grade of coal and were handled by the same engineer, fireman and train crew.

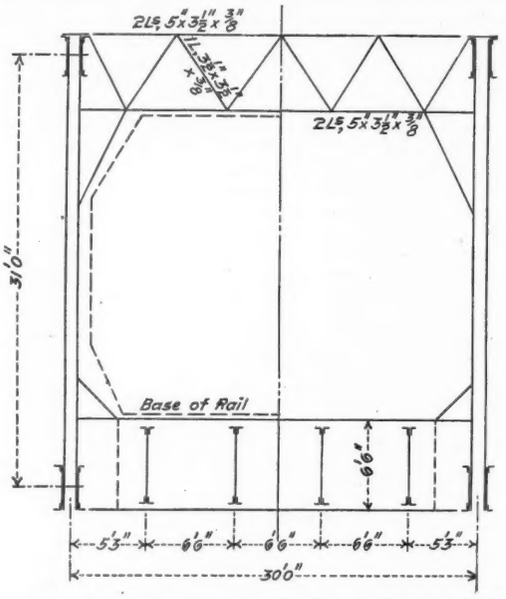
Among the more important points brought out by these tests was the fact that the coal consumed per ton-mile on all the compounds showed over 20 per cent. decrease. The water evaporated per pound of coal also gave a considerable increase in the percentage in comparison with the simple class engine. Better average speed was made with the compound engines, while a greater tonnage was handled. It was also found that the average amount of coal consumed per ton-mile was practically the same in the long narrow firebox as in the wider firebox class, from which it would appear that in the matter of fuel economy there was no practical advantage in the wide firebox.

The deductions gathered from the test showed that the compound engines are much superior to the simple class engine in the matter of fuel economy; while, at the same time, the repairs to this class are not more excessive than on the simple engines; on the contrary, it has been found that greater mileage can be obtained from the compound engines than from the simple classes, better average monthly mileage and greater mileage between shopping periods. While the boiler and tube repairs on the compound engines have shown particularly good results.

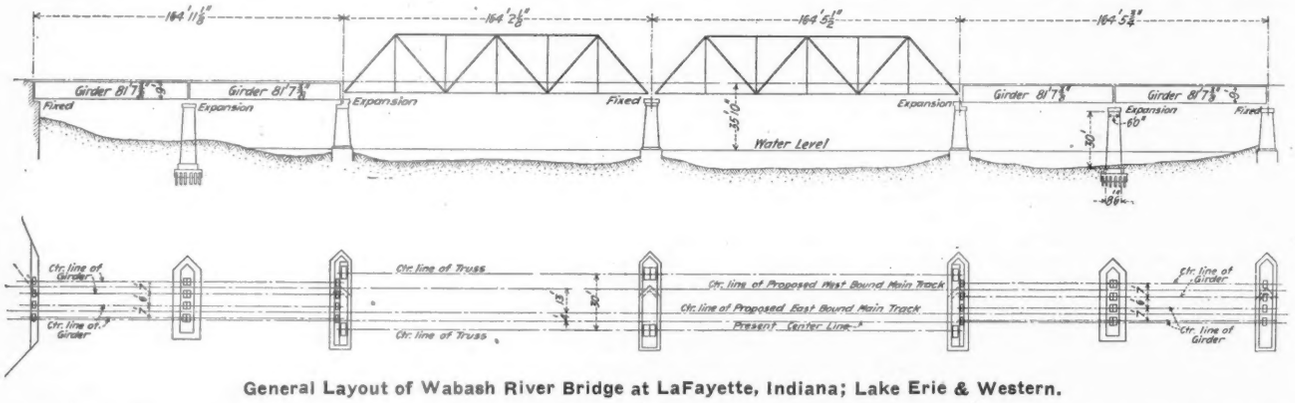
New Wabash River Bridge for the Lake Erie & Western.

The first crossing of the Lake Erie & Western over the Wabash river at La Fayette, Ind., was built in 1873. It consisted of four spans of through Howe trusses on masonry piers. About nine years later the Howe trusses were replaced with combination trusses. At the end of another nine years it again became necessary to provide a stronger structure and steel spans were substituted, the same piers being used. The steel bridge consisted of four single-track Pratt trusses, 164 ft. center to center of end pins.

To accommodate the present heavy locomotives it has once more become necessary to renew this bridge, which is used jointly by the Big Four and Lake Erie & Western. Plans have therefore been made for a double-track structure composed of two riveted through-truss river spans, 161 ft. 6¾ in. center to center of end pins,



Cross Section of Wabash River Bridge; Lake Erie & Western.



General Layout of Wabash River Bridge at LaFayette, Indiana; Lake Erie & Western.

and two deck girder spans at each end, 81 ft. 8 in. end to end. The existing piers will again be used and will be extended to provide for the additional width of the bridge needed for the second track. Also the replacing of the present shore spans by plate girder spans of approximately half the length will require the building of two new piers.

A plan and elevation of the new bridge is shown herewith. The pier extensions will be made on the upstream end. The bridge is designed for Cooper's E-60 loading and to Lake Shore & Michigan Southern specifications, which require open hearth steel of 60,000 lbs. ultimate strength and an elastic limit of not less than 60 per cent. of this ultimate. The dead load on the through truss spans is 5,200 lbs. per lineal foot and on the deck girders, 1,410 lbs. The impact stress is calculated by Pritchard's formula, the total stress being taken as the sum of the live and dead load and impact stresses.

We are indebted to Mr. G. P. Smith, Chief Engineer of the Lake Erie & Western, for the drawing and information.

What Stops a Moving Train.*

When a train is brought to rest from a high speed the statement is often made that the brakes have stopped the train. And they have certainly had something to do with it, for without them the length of stop would undoubtedly have been somewhat longer. But there are many factors which enter into the operation of bringing a moving train to a standstill besides the brakes themselves. Some of these other factors are at once apparent when the problem is given careful thought, but some are not so evident.

It must be understood that one, and only one, fundamental cause brings a moving train to rest. This is friction. Now the friction concerned in stopping a train is by no means confined to one place. We have friction between the moving parts within the train itself, between the train and the atmosphere (and this is astonishingly great at high speeds), between the brake-shoes and the wheels, and between the wheels and the rails.

Let us consider the latter for a moment. It is this friction between the wheels and the rails on which they roll which is really the most important factor of all. Very often, however, it is entirely overlooked, along with the first two frictional resistances mentioned above, and we say, "The brakes stopped the train." But suppose, for example, that there is absolutely no friction between the wheels and the rails. This may be easily imagined by supposing the rails to be made of ice. Would any amount of brake shoe pressure bring the train to a stop quickly? . . .

The coefficient of friction and, consequently, the frictional resistance, varies with the nature and condition of the surfaces. This is by far the most important and firmly established of the laws of friction. . . .

In the case of a car wheel rolling on a rail we may consider that the point in contact with the rail is, *at that instant*, at rest so far as the rail is concerned. For, at each successive instant a new portion of the tire comes in contact with the rail. This part of the tire surface, for the moment during which it is on the rail, is not moving with reference to the rail. Consequently, the friction which prevents the wheel from sliding along the rail is not the friction of motion, but the friction of rest; that is, between the wheel and the rail we have to do with static friction. This may be most clearly seen in photographs showing a wheel rolling along the ground or on a rail. The part of the wheel near the point of contact with the surface over which it rolls is clearly and sharply defined, while the upper part of the wheel is blurred, showing that the point in contact with the ground or rail was at rest relatively to the camera. The case is different when we come to the brake-shoe, for here the wheel is always moving on the brake-shoe, and we have always to do with the friction of motion or kinetic friction. The coefficient of friction in this case is always less, and as a rule it is very much less, than the coefficient of static friction.

We now approach the question of wheel sliding, and for a thorough comprehension of this a careful analysis of what occurs must be made step by step.

Suppose the brakes to be applied with a light pressure. This pressure multiplied by the coefficient of friction (kinetic) between the brake-shoe and wheel gives the frictional force acting with a tendency to stop the rotation of the wheel. But the weight on the wheel multiplied by the static coefficient of friction between wheel and rail gives the frictional force resisting the tendency of the wheel to stop rotating, or, as we say, slide. A little thought will make it clear that as we increase the pressure on the brake-shoe the frictional force tending to stop the rotation of the wheel increases, and that this increase in retarding frictional force will continue until the point is reached where this force becomes equal to the frictional force (static) between the wheel and the rail. Then the slightest increase in brake-shoe pressure makes the frictional force acting to stop the wheel rotating the greater, and naturally it must then stop rotating. The condition of things is now entirely changed. The wheels are locked and are sliding along the rails. What have we now between wheel and rail? Evidently sliding or kinetic friction, where before it was static friction.

But we have just seen that up to the point of sliding a retarding force was being exerted by the brake-shoes, which, when the point of sliding was reached, equaled the static frictional resistance between wheel and rail. Now, with the wheels sliding, a retarding force is being exerted only between the wheels and rails, equal to the kinetic frictional resistance between the wheels and the rails on which they slide, which, as we have already seen, is very much less than is the case when the wheels roll without sliding. Therefore, our retarding force is greatly decreased by the sliding of the wheels and the distance required in which to make the stop is correspondingly lengthened. We have thus arrived at the answer to the question so often asked, "Why is the distance traversed in stopping a train so greatly increased if the wheels slide during the stop, instead of continuing to roll?" It is plain that if the brakes are to be most effective in bringing the train to a stop the wheels must not slide; and the greater the resistance to sliding, due to the friction between the wheels and rails, the greater is the retarding force which may be exerted at the brake-shoe and the shorter is the stop.

Another point frequently misunderstood or lost sight of is the relation between the brake-shoe pressure and the weight carried by the wheel on which it acts, and in particular the amount of brake-shoe pressure required to slide a wheel. In order to avoid complication let us imagine the wheel to slide at once—that is, as soon as the pressure is applied. What relation existed between the forces at the instant of sliding, or, in other words, what made the wheels slide? The fact is that the wheels slide because the weight on the wheel x coefficient of friction (static) between wheel and rail is less than the pressure on the brake-shoe x coefficient of friction (kinetic) between the shoe and the wheel. They do not slide because of the coefficient of friction alone, or because of the pressure alone, but according to the product of these two, namely, the total frictional force, is greater at the shoe than at the rail. Let us take an example which will illustrate just what is meant.

Suppose we have a car weighing 80,000 lbs. having four-wheel trucks. Each wheel supports a load of 10,000 lbs. An average value for the static coefficient of friction between the wheel and rail under ordinary conditions is .20. It may run as high as .30 or as low as .18, according to the condition of the rail. Calling the coefficient of friction .20 the total frictional resistance to sliding between wheel and rail is 10,000 x .20, or 2,000 lbs. This is then the force which must be overcome if the wheels are to be made to slide.

At 60 miles per hour the coefficient of friction between brake-shoe and wheel is about .07. Suppose the braking power on our 80,000-lb. car to be 90 per cent. of its weight. We have then a total braking power, in pounds, of .90 x 80,000, or 72,000 lbs., which gives a brake-shoe pressure for each shoe, there being eight shoes of 72,000 ÷ 8 = 9,000 lbs.

The retarding frictional force is then, as we have seen, the pressure x the coefficient of friction, or 9,000 x .07 = 630 lbs. We have here then 630 lbs. acting to stop the rotation of the wheel and 2,000 lbs. acting to prevent it from being slid. We shall expect it to continue to revolve under these conditions, and for some time; in fact, until the condition of 630 lbs. trying to overcome 2,000 lbs. changes materially.

But it is asked, "What changes must take place in order to slide the wheels? and what changes of condition can take place?" From what has been said it is plain that the wheel can only slide when the total frictional force between brake-shoe and wheel exceeds that between wheel and rail. Notice the expression "total frictional force," not "coefficient of friction." This is the one necessary and sufficient condition required to slide the wheel. Two possibilities are evident. The friction between the wheel and rail may decrease, which would occur if the wheel should suddenly come upon a greasy rail surface and cause the wheel to slide. Such causes will not be considered, as we assume a straight, level track with a uniform condition of rail surface. The only place left where any change may occur is between the brake-shoe and wheel. To this then we must confine our attention. To slide the wheel, then, the total frictional force between brake-shoe and wheel must increase until it becomes greater than that between the wheel and the rail, as has been already explained. This can occur in only two ways. Either the brake-shoe pressure must increase or the coefficient of friction between brake-shoe and wheel (kinetic) must increase. These two methods of sliding the wheels are the only possible methods, and it may be confidently stated that whenever a wheel slides (assuming the train to be on a straight, level track with uniform rail surface condition) either the brake-shoe pressure or the coefficient of friction between shoe and wheel must have increased.

Taking the case cited above, if we consider .07 as the coefficient of kinetic friction at 60 m.p.h., the brake-shoe pressure required to slide the wheel would be 2,000 ÷ .07, or approximately 28,500 lbs. This means a braking power, total of 28,500 × 8 = 228,000 lbs., which is 285 per cent. braking power. Yet an 80,000-lb. car can hardly be found braking at over 90 per cent. Apparently we might increase our braking power very considerably and still be in no danger of sliding the wheels.

But this is only half the story. We have seen how much the brake shoe pressure must be increased before sliding will occur. On the other hand, the coefficient of friction may increase, and so the wheels be slid, even with the same brake-shoe pressure of 9,000 lbs. In order to do this the coefficient of friction must be equal to 2,000 ÷ 9,000, or .22. This may seem large when compared with .07, the average value for a speed of 60 m.p.h., but the fact has now become well established that the coefficient of kinetic friction between brake-shoe and wheel is very different at different speeds. At 60 m.p.h. the average value for this coefficient of friction is about .07, while at 30 m.p.h. it is about .16, and at 10 m.p.h. about .24. We can now see what would happen in the case we have been considering. Although at the start, running 60 m.p.h., we had only 630 lbs. retarding force attempting to overcome 2,000 lbs. tending to prevent sliding (often called the adhesion of the wheel to the rail), yet at 10 m.p.h. we would have 9,000 x .24 or 2,160 lbs. retarding force at

*Extracts from a paper presented at the May meeting of the Western Railway Club, by S. W. Dudley, Asst. to Mech. Engr., Westinghouse Air-Brake Company.

the brake-shoe, which is more than enough to slide the wheels.

So we may not hasten to increase our brake-shoe pressure or per cent. braking power without careful consideration. And upon investigation we do find still further factors which have influence tending to modify this rapid increase in coefficient of friction due to decreasing speed. These may be briefly comprehended in the term, "the time element." While it is impossible to go fully into the interesting and complicated changes which the friction between the brake-shoe and wheel undergoes during the time in which the surfaces continue in contact it may be said that tests have fully demonstrated that the heating, wearing away and polishing of the surfaces in contact have, as time goes on, a constantly increasing influence tending to reduce the coefficient of friction; the lubricating effect of the molten particles, the roller-like action of the larger particles which become torn off during violent and prolonged rubbing, and the smoothing and polishing of the surfaces, where melting or abrasion does not take place; all these tend to off-set, and may often considerably reduce the tendency for the coefficient of friction to increase as the relative speed of two surfaces in contact diminishes. The retarding effect of the brake-shoe pressure at any instant depends, therefore, on the sum total of these opposing influences at that instant. Numerous experiments which have been made along this line show that under ordinary conditions the increase in coefficient of brake-shoe friction and consequent increase in retarding force, which takes place as the speed is decreased, is the predominating influence, and that the retarding effect of a given brake-shoe pressure increases, as a whole, as the speed diminishes. But recent tests have further demonstrated that this increase in retarding force, due to the increase in the coefficient of brake-shoe friction as the speed decreases, is considerably less than has heretofore been supposed, and that under certain conditions the "time element" effect may become equal to and thus neutralize the increase in the coefficient of friction due to decreasing speed. Under such conditions the coefficient of friction is the same at the end as at the beginning of the stop. This is modified by the degree of hardness of the brake-shoe.

Having thus far been concerned with the kind of forces which operate to bring a moving train to a standstill, and the ways in which these forces act to produce the desired effect, it now remains to obtain some idea of the magnitude of the forces involved. This may be done by simple, yet exceedingly instructive consideration of the energy created and destroyed in the process of bringing a train up to speed and in making a stop. First, what must be done before a train can attain a speed of say 65 m.p.h.

We know that all matter is, as we say, inert; that is, it has no power of itselif to change its state, either of rest or motion. A stone will always remain where it lies, unless some force from the outside acts upon it and overcomes its natural or inherent tendency to remain without motion. Furthermore, a stone thrown into the air would go on forever were it not for external forces, such as the attraction of the earth, air resistance, or obstructions which may be in its path, which retard and finally stop its motion. This property of matter to remain at rest, if at rest, or to continue to move uniformly, if in motion, has been universally recognized as something as definitely a characteristic of all material bodies as is size, mass or hardness, and it is called the inertia of the body.

To start a train then its inertia must be overcome, and in addition the very considerable frictional resistances between the moving parts within the train itself. Having the train once in motion a constantly increasing amount of force is required in order to continue to increase its speed, for we have just seen that instead of continuing to move uniformly the air and other frictional resistances would all tend to decrease its speed. All of the force which is required to overcome these resistances, and, in addition, constantly increase the speed of the train until it is moving at the rate of 65 m.p.h. must come from the steam in the locomotive cylinders. Some of the energy developed here has disappeared in the form of heat, but the rest has been put into the train, constantly adding to its store of energy, until at 65 m.p.h. the train has stored up within itself an amount of energy equal, in destructive power, to that contained in a huge magazine of gun powder. Anyone who has witnessed the effects of a "head-on" collision, even at slow speed, will bear witness to the truth of this statement.

In round numbers a train of five cars moving at the rate of 65 m.p.h. possesses 150,000,000 ft. lbs. of energy, and if run against a solid wall the result would be the same as if it were allowed to fall to the earth from a height of about 150 ft. But such a stop would not be considered as according to the best recommended practice, and as speeds of 65 or even 70 m.p.h. are becoming by no means rare, some knowledge of how we may safely come to a stop is not only interesting but of vital importance.

Let us imagine the train, moving as described above, to be stopped within say 1,400 ft. About 150,000,000 foot pounds of energy have been destroyed, harmlessly, and almost without the notice of those within the cars. Evidently some very powerful force has been at work to do this, and, as we have already seen, this is the force of friction. The natural frictional resistances of the air and the moving parts within the train would certainly have stopped the train in time, but it is plain that something more than these is required if a stop within any reasonable distance is to be made. The frictional resistance to the motion of the train is, therefore, artificially increased in such a case by means of some form of brake apparatus.

The power which is thus exerted may be roughly measured by the distance within which the moving train is brought to rest and its energy destroyed. In such a stop as described above more power has been used than the heaviest locomotive ever built is capable of exerting. The truth of this statement is evident when we remember that from five to six miles is required, even under the most favorable circumstances, for a locomotive to bring such a train up to a speed of 65 m.p.h., while the stop may be made within 1,400 ft., which is about one-nineteenth of that distance. Of course the frictional resistances existing outside of the brakes hindered the locomotive in accelerating the train and assisted the brakes in reducing its speed, but after all allowances are made it is clearly evident that the brakes have acted much more powerfully in stopping the train than did the locomotive in starting it. And this is just what we should expect when we remember that only one unit, namely, the locomotive, is concerned in starting the train, while not only the locomotive, but every car in the train is concerned in making the stop.

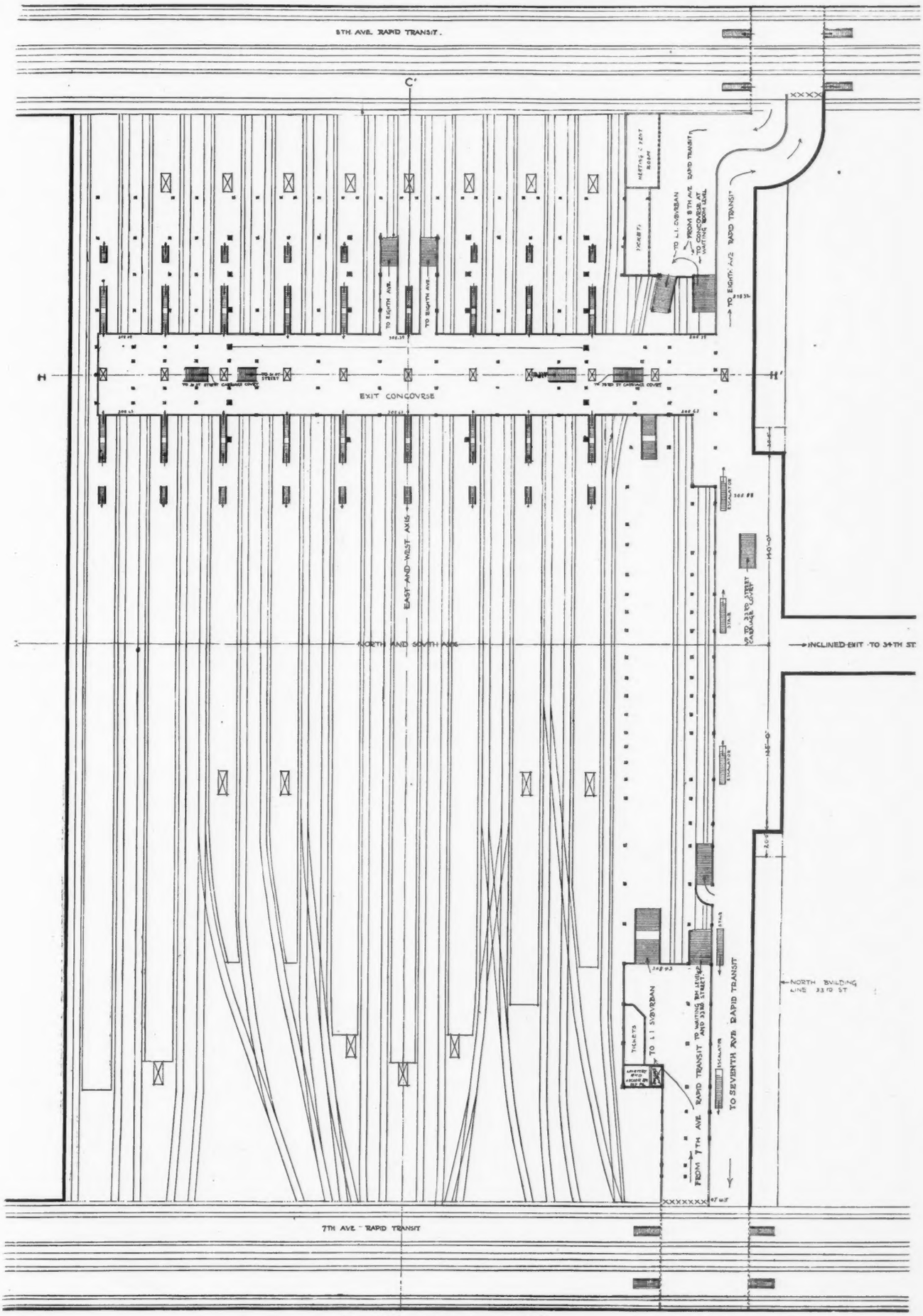
To start the train the total force exerted by the engine on the train at any time cannot exceed the frictional force between the driving wheels and the rails, sometimes called adhesion, otherwise the drivers would slip and simply turn without moving the train ahead. Evidently this adhesion depends upon the weight on the drivers and the static coefficient of friction between the drivers and rails, just as in the case of the car wheel already considered. But when we make a stop each wheel in the train, as we have seen, may be retarded up to the limit set by the frictional resistance to motion between that particular wheel and the rail. Consequently, assuming that the coefficient of static friction between wheels and rails is the same throughout the train, the retarding power may be proportional to the weight of the entire train, while the accelerating power depends upon the weight on the engine drivers alone. This explains at once the advantages of a multiple unit system, such as a train of all motor cars, as compared with the single unit sysem of locomotive and train. In reality, when the brakes are applied upon a moving locomotive and train the system is changed from a single accelerating unit to a multiple retarding unit system, which is much more powerful in the aggregate, as we have just seen, than is the former.

The Pennsylvania Railroad's Extension to New York and Long Island.

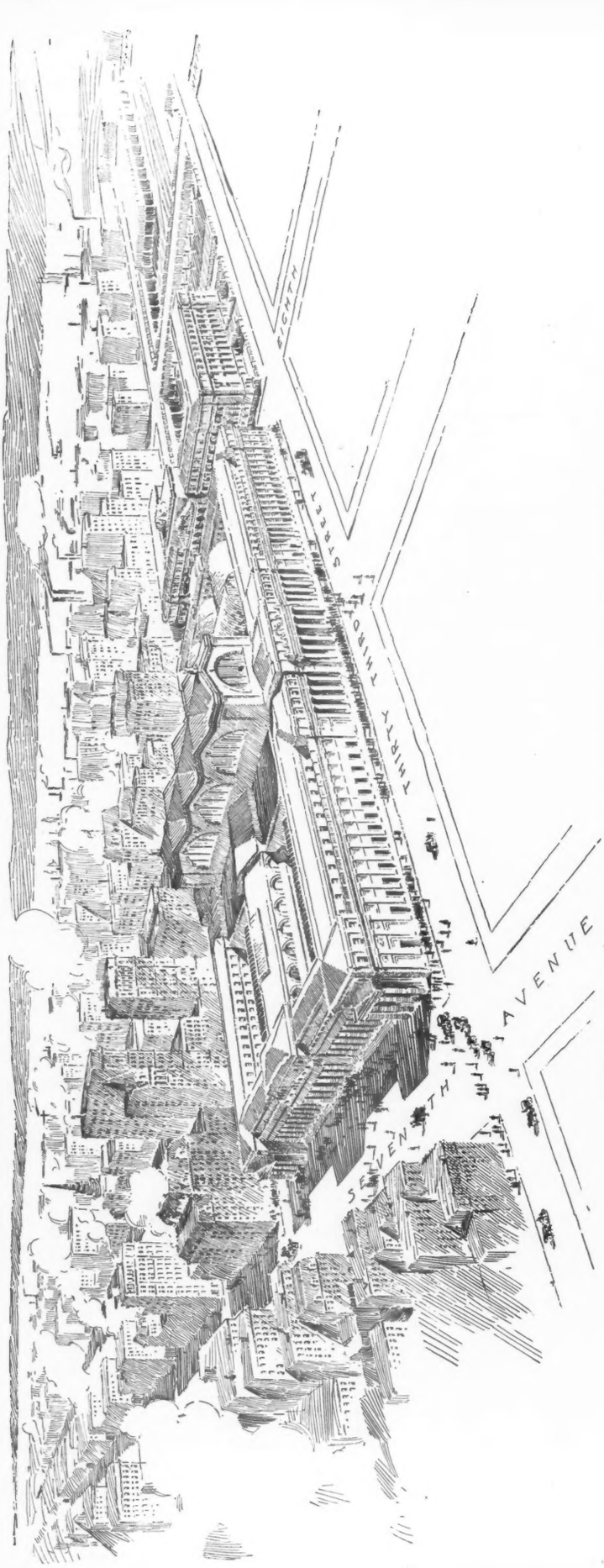
The new Pennsylvania Railroad station in New York, for which the plans are now practically perfected, will be unique among all the railroad stations of the world in the number and convenience of its entrances and exits. This condition is due to the fact that each of the four sides of the structure is a front, opening respectively on two wide avenues and two important streets, which latter have been widened by the company to 80 ft. each.

The geography of the station is interesting. It is bounded on the east by Seventh and the west by Eighth avenue; on the south by Thirty-first and the north by Thirty-third street, Thirty-second street having been closed and included in the station site. In the center of the hotel, theater and shopping district the advantage of its location is obvious. The frontage on the avenues is 430 ft. and on the streets 780 ft., the sides of the structure forming a perfect parallelogram. As the tracks are 40 ft. below the surface of the streets the station is divided into three levels. From the street level upward the walls of the structure rise to the height of 60 ft., except in the center, where the roof of the general waiting room reaches a height of 150 ft., and the corner of Eighth avenue and Thirty-third street, where there is an elevation of four stories for office purposes. The architectural design of the entire exterior is a Doric colonnade, 35 ft. high, surmounted by a low attic, raising the general elevation to 60 ft. The unusual extent of the building in area and its general type are suggestive of the great baths of ancient Rome. In fact, the baths of Caracalla, still magnificent in their ruins, were the inspiration of this architectural plan.

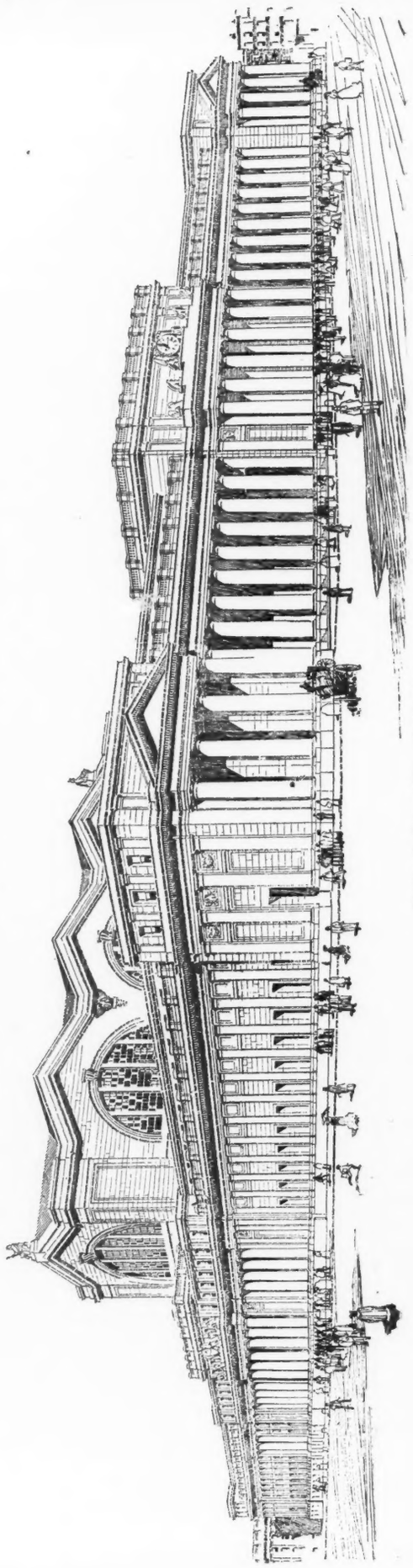
Although the building is low by contrast with its skyscraping neighbors, its scope makes it impressive, and the lofty roof of the waiting room, rising high above the top of the surrounding structure, with its eight large semi-circular openings, 72 ft. in diameter, adds dignity to the group of buildings and at the same time makes them a conspicuous landmark, when seen in perspective from the streets. In appearance it is a wide departure from the conventional railroad station. One misses the turrets and towers and more than all the lofty arched train shed, but as the principal function of this station is performed underneath the streets, the upward and visible signs of the ordinary railroad station are naturally absent. It will rather resemble some vast auditorium constructed



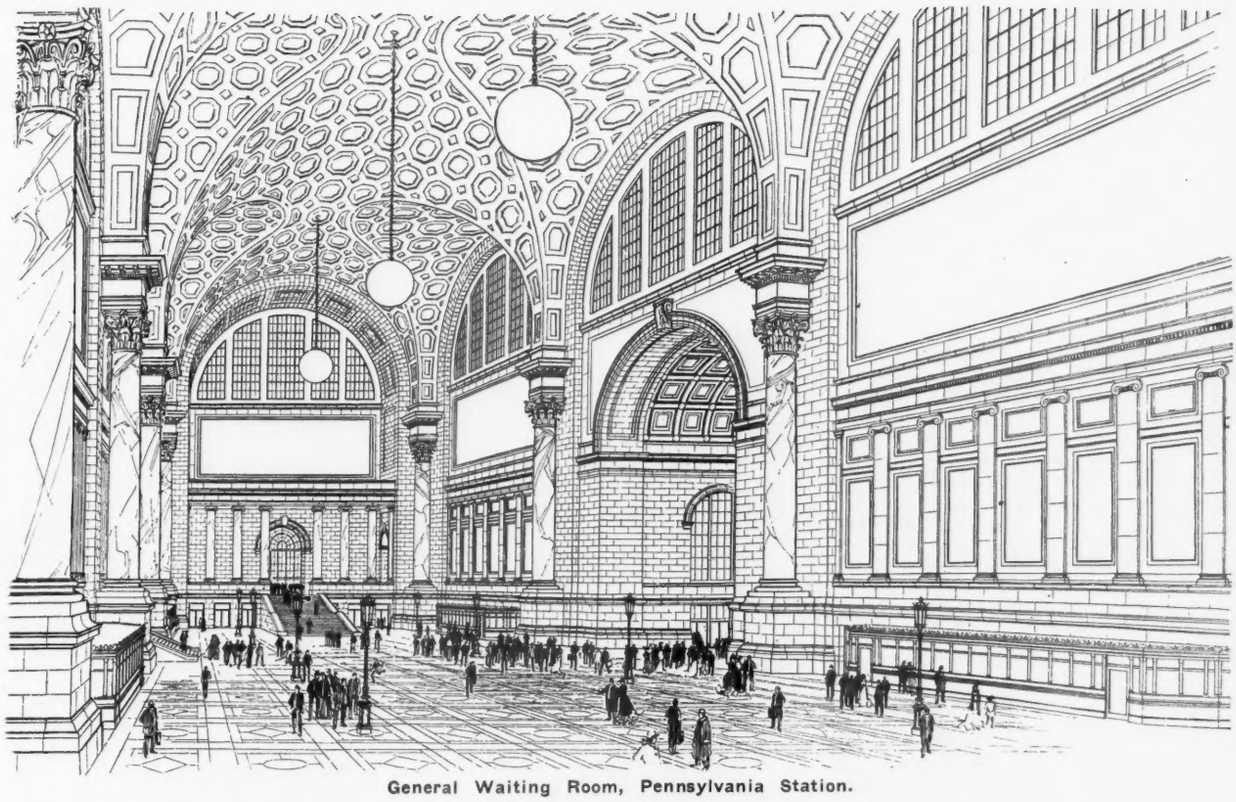
Track Plan, Pennsylvania Station.



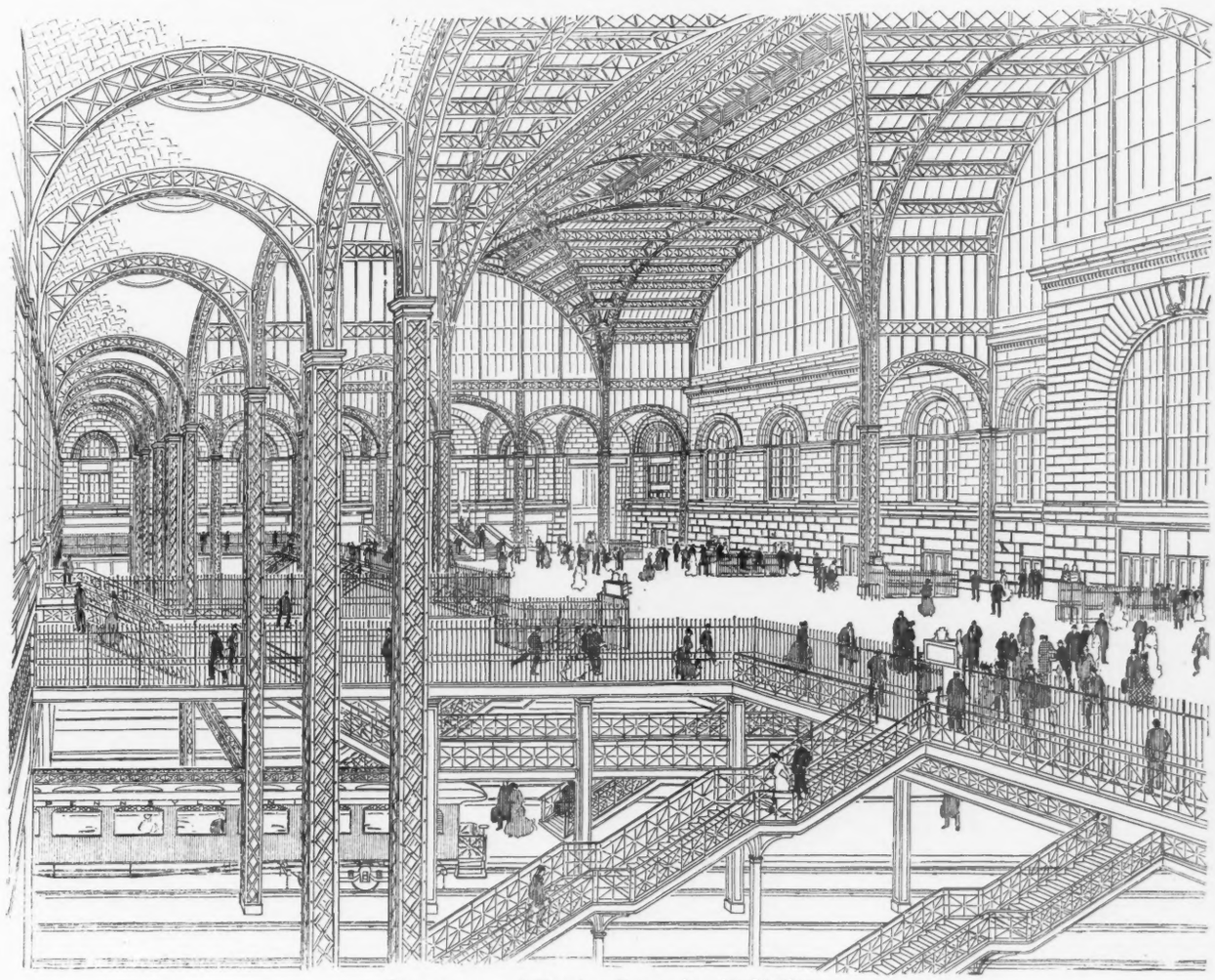
Bird's Eye View Showing Location of Pennsylvania New York Terminal.



General Elevation of Station.



General Waiting Room, Pennsylvania Station.



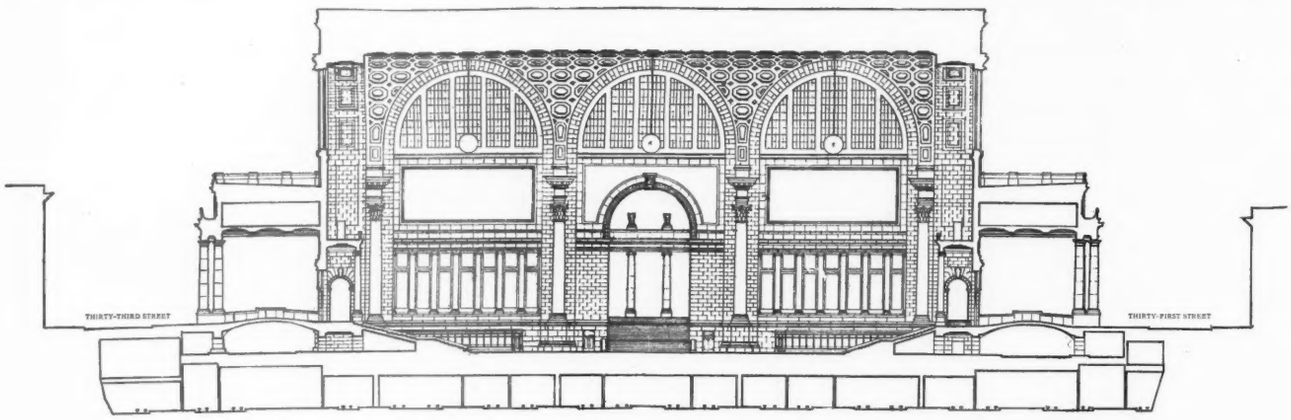
Concourse and Tracks, Pennsylvania Station.

on low lines for the easy ingress and egress of a multitude of people. The exterior construction is to be of pink Milford granite, similar to the building stone of the Boston Public Library, the University Club in New York, the Court House in Pittsburg, and the Chamber of Commerce in Cincinnati.

The main entrance is in the center of the structure on Seventh avenue, opposite the intercepted end of Thirty-second street. This is for foot passengers only, and from the street entrance to the stairway to the main waiting room there extends an arcade 225 ft. long and 45 ft. wide flanked by shops, which will be occupied by merchants, whose wares will appeal especially to the requirements of travelers. On either side of the Seventh avenue entrance there are also a series of stores. At the further end of the arcade the restaurant, lunch rooms and the café are established, with proper kitchens and service connections. Beyond is the general waiting room and the concourse, all easy of access by convenient stairways.

At the corners of Thirty-first and Thirty-third streets and Seventh avenue are open pavilions, which furnish carriage entrances for incoming and outgoing traffic. Under cover carriages descend from the street level by a slight gradient about 20 ft. to the level of the station proper, the Thirty-first street incline being assigned as an entrance and the Thirty-third street ascent as an exit. By this arrangement carriage passengers are delivered at the most convenient entrance to the general waiting room.

Apart from the main entrance there are other convenient entrances for foot passengers from the street level to the general waiting room and concourse from both the streets and the avenues. At a central point in both streets wide bridges leading into the street floor of the station span the carriage subway. On the intermediate plane or level the real business of the passenger preparatory to his journey is transacted.



Section of Station on North and South Axis.

The general waiting room, the largest of its kind in the world, 320 ft. long, 110 ft. wide and 150 ft. high, is the central section of the plan. Within its spacious walls will be located the ticket offices, parcel rooms, telegraph and telephone offices and baggage checking windows, all so disposed as to situation that a passenger may proceed from one to the other seriatim, with a minimum amount of exertion and without retracing his steps.

Adjoining the general waiting room on the west are two subsidiary waiting rooms, 58 by 100 ft., for men and women respectively, provided with seats, and opening into retiring rooms, with lavatories attached.

To the east of the general waiting room the main baggage room, with 450 ft. of frontage, for the use of the transfer wagons, is located, covering the full area occupied by the arcade and restaurants on the plane above. The baggage is delivered and taken away through a special subway, 30 ft. wide, extending under and along the entire length of Thirty-first street and Seventh and Eighth avenues. From the baggage room trunks are delivered to the tracks below by motor trucks and elevators.

The cabstands will also occupy this level. There will be maintained an ample service of electric vehicles of varying capacities to meet the requirements of travelers.

Parallel to and connecting with the main waiting room by a wide thoroughfare and west of the subsidiary waiting rooms is the concourse, a covered assembling place over 100 ft. wide, extending the entire width of the station and under the adjoining streets. An idea of the width of this concourse is gained by a comparison of it with the lobby of the Jersey City trainshed, which is narrower by 25 ft. This may be termed the vestibule to the tracks, as two sets of stairs descend from it to each of the train platforms on the track level. The concourse and adjacent areas are open to the tracks, forming a courtyard 340 ft. wide by 210 ft. broad, roofed by a lofty trainshed of iron and glass, similar in design to the famous trainsheds of the new stations in Frankfort and Dresden, Germany. In addition to the entrances to the concourse from the waiting room there are also direct approaches from Thirty-first, Thirty-third streets and Eighth avenue.

The gates of the stairs descending from the concourse to the trains will bear signs announcing the name, destination and the time of departure of the train on the particular platform where the stairs land.

Auxiliary to the main concourse and located between it and the tracks is a sub-concourse, 60 ft. wide, which will be used for exit purposes only. This passageway is 18 ft. above the tracks, but is connected with the track level by two stairways and one elevator from each platform. From it ample staircases and inclines lead directly to Thirty-first, Thirty-third and Thirty-fourth streets, to Eighth avenue and to future rapid transit stations under Seventh or Eighth avenues. Direct connection may also be made with the proposed subway stations on Herald Square without ascending to the street level.

The northern side of the station extending along Thirty-third street will be assigned to the suburban service of the Long Island Railroad, into which trains will run from all points on Long Island by way of the East River tunnels. Ample entrances and exits are provided on Seventh and Eighth avenues and Thirty-third street, so that this traffic can be handled in connection with the adjacent subways and the surface lines on the surrounding streets independently of the rest of the station.

The third level, which is at a depth below the surface of the street corresponding to the height of a four-story building, is the track level. When the two tracks emerge from the tubes under the Hudson and reach the entrance to the station yards at Tenth avenue they begin to multiply, and at Ninth avenue, and extending into the station, the total number has grown to 21. There is also a reduction in the number of tracks leading out of the station to the east, to a total of four for the main line, two passing under Thirty-second and two under Thirty-third street, and thence under the East River to the Long Island City yards. The track surface of the station may be compared to two unfolded fans joined together at the open ends, the handle of one extending under the Hudson and that of the other under East River. Within the station area, covering 25 acres of ground space, there are 16 miles of tracks. This trackage area will afford ample facilities for easy movement of many hundred trains per day by the prompt and efficient means of electric power. Through trains from the western side of the Hudson, after discharging passengers, will proceed at once to Long Island City, where the train yards and terminals will be located, thus leaving the station tracks clear of any idle equipment, and likewise the westbound through trains made up at the Long Island City terminal will pass through the station, stopping only to take up their quota of passengers. The suburban service of the Long Island Railroad will be operated on the "shuttle" plan, by which the trains are kept in continuous motion in and out of the station.

The planning of the station, with its numerous entrances and exits independent of each other and separating the incoming from the outgoing throng, was worked out to facilitate, in greatest measure, the prompt and uninterrupted movement of the traffic.

The exposure of the building on all four of its sides to main arteries of street traffic gives the plan a flexibility, which is rarely obtainable in a building of such enormous proportions situated in the heart of a great city, and also insures easy connections by underground subways with the future extensions of the city's rapid transit system under Seventh and Eighth avenues and the cross streets.

The designs for the station were made by McKim, Meade & White, and will be executed under their direction. The drawings shown with this article supplement those shown in our issue of Feb. 9, 1906, to which reference should be made.

Demurrage Managers' Annual Meeting.

The seventeenth annual meeting of the National Association of Car Service Managers was held at Denver May 15 and 16. The association includes the managers of all demurrage bureaus in the country, 41 in number. Twenty-five members were in attendance.

The President of the association, Major Charles B. Peck, of Houston, Texas, died in June, 1905, and Vice-President C. W. Sanford is seriously ill, so that Commissioner E. E. Hill, of the Denver association, presided.

The Secretary's report showed 33,366,361 cars reported during 1905, an increase over the previous year of 4,216,484. The average detention to cars while loading and unloading, during the year 1905, was 1.4 days per car. The association has published in pamphlet form all legal decisions bearing upon car service rules, and the pamphlet may be obtained by anyone interested by application to A. G. Thomason, Secretary, Scranton, Pa., or any car service manager. At the request of the Association of American Railway Accounting Officers the following committee of car service managers was appointed to meet at Bluff Point, N. Y., June 26, 1906, to confer on proper methods of accounting for car service earnings: E. B. Stevenson, of Nashville, Tenn.; B. H. Garrigues, of Kansas City, Mo.; J. O. Klapp, of Milwaukee, Wis.; C. W. Bradley, of Buffalo, N. Y.; A. G. Thomason, of Scranton, Pa.

The committee on claims reported on the manner of adjusting claims caused by refusal of freight by consignees, provoking a lively discussion. The committee is to be continued from year to year in an effort to arrive at uniformity in treatment of claims. The committee on office methods and accounting reported a form of daily report and form of car service bill. This committee was instructed to confer with the Association of Transportation and Car Accounting Officers, looking toward a combined form of daily report to be made to the transportation officer and the car service association.

A paper was presented by J. E. Challenger, of Philadelphia, entitled "Publication of Detention Statistics." The association decided to appeal to each railroad in the country for an expression of opinion as to how these statistics should be compiled and published. A. J. Elliott, of Peoria, read a paper on charging for Reconsigning Privileges. A committee of three managers was appointed to further the ideas advanced in this paper. F. R. Hanlon, of Seattle, read a paper advocating a uniform rule to govern detention to cars delayed by improper loading by shippers. J. E. Duval, of Montreal, addressed the convention on car service conditions in Canada.

C. W. Sanford, of Chicago, was elected President, and E. B. Stevenson, of Nashville, Vice-President; and A. G. Thomason, of Scranton, Pa., was re-elected Secretary-Treasurer.

The selection of time and place of next meeting was left to the Executive Committee, with the preference expressed for Norfolk, Va., in May or June, 1907.

Most of the Car Service Managers are associate members of the Association of Transportation and Car Accounting Officers, and remained at Denver to attend the meeting of that association on the 17th.

Railroad Officers' Stock in Coal Companies.

The investigation being made by the Interstate Commerce Commission into the relations of prominent railroads to the coal companies shipping over their lines was continued last week in Philadelphia, where many officers of the Pennsylvania were examined. Evidence was given tending to show many irregularities in furnishing cars to different shippers. The railroad company had an established schedule of percentages of cars to be delivered to different collieries. Instances cited by the Government of excessive numbers of cars delivered to alleged favored shippers were explained by the assertion that in times of stress important consignees, such as municipal lighting plants and large public institutions, were favored. A number of instances were cited where in the great scarcity of cars, three or four years ago, the railroad company permitted large numbers of new coal cars—500 in one case—which had been ordered by it to be sold and delivered by the maker to coal companies instead of to the railroad company. The Morrisdale Coal Company, shipper of bituminous coal in the Clearfield region, charged that the Pennsylvania had furnished it with far less than its rightful share of cars, and, in 1902 and 1903, had practically destroyed the coal company's business by not furnishing cars, while the mines of larger shippers were able to ship their normal quantities.

A large part of the inquiry at Philadelphia was taken up with the examination of officers of the Pennsylvania concerning their ownership of the stocks of coal companies. From the reports of the hearings of May 16, 17 and 18, as given by the Associated Press, we take the following paragraphs:

George W. Creighton, General Superintendent, admitted that he held stock in several coal companies, and that stock had been presented to him. . . . Among the companies in which Superintendent Creighton admitted that he held stock which had been presented to him are the following: Mitchell, Watson & Co., 667 shares; Cochran Coal Company, 250 shares; Cabot Creek Coal Co., 50 shares; Commercial Coal Company, 33 shares; Big Bend Coal Company, 17 shares; Monterey Coal Company, 40 shares. In addition he holds 200 shares of the Saltsburg Coal Company stock, which he purchased, according to his statement, at half par value.

President J. M. Jamison, of the Jamison Coal & Coke Co., testified that his company had presented to Pennsylvania Railroad officials stock in his company with the object of securing better treatment and facilities from the corporation. Through J. R. McGinley, of Pittsburg, 500 shares of stock in the Jamison Company had been offered to Robert Pitcairn, assistant to the President. Pitcairn did not want the stock and the witness bought it back from him for $5,000; he was told by McGinley that Pitcairn said he preferred the money to the stock. Witness said that he held in trust 400 shares which belonged equally to Edward Pitcairn, trainmaster of the Pittsburg division, and R. L. O'Donnel, General Superintendent of the Buffalo & Allegheny Valley division. The stock was presented to the men named. George W. Clark, car distributer at Altoona, held 100 shares, and Joseph Boyer, employed in the office of A. W. Gibbs, Superintendent of Motive Power of the Pennsylvania Railroad, held 200 shares.

George W. Clark told of having received monthly a check for $50 from Capt. Alfred Hicks, a mine operator, and stated that he did not know why the money was sent to him.

R. K. Cassatt told the commission that at a time when the Pennsylvania Railroad Company was suffering from a scarcity of coal cars it had relinquished its claim to 500 cars ordered from the Pressed Steel Car Company, and that the cars had been purchased by the Keytsone Coal & Coke Company.

Charles E. Pugh, Second Vice-President, asked as to his policy regarding sidings said: "We have refrained as far as possible from putting in new sidings." The company was not inclined to place a siding for an operation of small promise. Mr. Pugh said he had several shares in the Brubacher Coal Company, which is a holding company only; nine $500 bonds in the Aroma Gas Coal Company, five $1,000 bonds of the Pittsburg & Chicago Gas Coal Company, 550 shares, par 55, of the Thacker Coal Company, on the Norfolk & Western, and 50 shares and $10,000 worth of bonds of the Thacker Fee Company, a holding company.

R. L. O'Donnel said he had 300 shares of the Keystone Coal & Coke Company, which were given him in exchange for 100 shares of the Madison Gas Coal Company, which was merged with the Keystone. The Madison shares were given to him. His holdings in the Latrobe-Connellsville Company are 400 shares, received in exchange for Saxman Company and Superior Company stock when these companies were absorbed. Mr. O'Donnel said he purchased no bonds, but shared in the free stock issue. J. Howard Patton, he said, gave him 120 shares of the Lucesco Coal Company. He received 200 shares in the Jamison Coal & Coke Company from Edward Pitcairn, trainmaster of the Pennsylvania Railroad. In the Preston Company Mr. O'Donnel has 25 shares, Gilpin Company 20 shares, Aronwall 20 shares, and Bagdad 20 shares. He said he paid $3,000 for the stock in the last three companies and had been receiving from $75 to $125 a month dividends on the stock.

George W. Clark, being asked about his dividends from Capt. Alfred Hicks, replied that he never received any dividends.

"Did you ever get any money from Capt. Hicks?"

"I received checks from Capt. Hicks."

"To what amount?"

"Fifty dollars each."

"How often did you get those checks?"

"About once a month for three or four months."

The witness was asked why the money was sent to him, and he replied that he did not know. He had never asked Capt. Hicks why he sent the checks, and when they ceased coming he did not ask Capt. Hicks why he had stopped sending them. After further questioning, Mr. Clark said he had received various gifts from mine operators during the past three or four years.

F. L. Sheppard, General Superintendent of the United Railways of New Jersey, was examined as to his stockholdings in coal companies and alleged pier privileges given the Berwind-White Company at tidewater.

Edward Pitcairn, trainmaster on the Pittsburg division, admitted having accepted stock in coal companies, and R. B. Freeman, another trainmaster, said he received Christmas presents of money from coal companies.

Major Richard Coulter, Jr., in his testimony said that Frank Thomson, an ex-President of the Pennsylvania Railroad, had participated in stock distribution.

E. J. Cleave, Superintendent of the Cambria & Clearfield division, said he had 250 shares of stock in the Cochran Coal Company, which he received in part payment for land sold to the company. He said he had had stock in coal companies offered him, but had declined to accept it.

Mr. Sheppard said he owned stock in several mining companies. He could not recall the names of some of these companies. The

stock in one, which is a subsidiary company of the Berwind-White Coal Company, the witness said, he received from Edward Berwind. It was paying dividends, but he did not remember the amount.

Mr. Sheppard said he owned 50 or 100 shares in the Pine Run Coal Company. He received this, he said, from Frank Patton. He had invested $2,500 in another company, which failed. This money was returned to him, and he received the Pine Run Coal Company stock. He also received, he said, 60 or 70 shares in the Pittsburg Coal Company for his work in negotiating the sale of the stock.

Mr. Sheppard testified that the Berwind-White Company rented a pier at Harsimus from the Pennsylvania Railroad for $1,800 a year. This pier, he said, was improved at a cost of $40,000 before the coal company rented it. The railroad company allows the Berwind-White company 7 cents a ton for unloading at Harsimus, and other companies at South Amboy are allowed 5 cents a ton for the same work.

Edward Pitcairn testified that the income from his coal stock amounted to about $30,000 annually.

J. K. Russell, a road foreman on the Pittsburg division, said he had 300 shares in the Keystone Coal & Coke Company, and was interested in the Ligonier Coal Company, the Altoona Coal & Coke Company, the Greenwich Coal Company and the Connellsville Coal & Coke Company. He had helped to organize the Claridge Coal Company, he said, and, when it was absorbed by the Keystone Company, he received 300 shares. Most of the other stock, he said, was given to him.

John Aldred, chief clerk in the office of S. C. Long, Superintendent of the Pittsburg division, said he owned stock in a number of companies which he secured through the payment of 10 per cent. at the time of organization. His income from his holdings was about $8,000 annually, he said.

On May 18, Vice-President John P. Green issued a statement saying: The recent developments at the hearing in progress before the Interstate Commerce Commission in this city in respect to the acquisition and ownership of the stocks of coal companies and the acceptance of gratuities by its employees are a surprise to the management. While it is not believed that these have caused injustice to the public or the company, the facts with respect thereto will be thoroughly investigated, and no ownership or practice calculated in any manner to affect the full and impartial discharge of the duty owed by the company, its officers and employees to the public will be tolerated.

Reply of the Standard Oil Co.

The Standard Oil Company makes the following full and interesting reply to the Garfield charges:

26 Broadway, New York, May 16, 1906.

To the Shareholders of the Standard Oil Company:

On May 4 the President of the United States submitted a special message to Congress transmitting a report to him by Commissioner Garfield of the Bureau of Corporations, in which the Commissioner charges that this company "has habitually received from the railroads, and is now receiving, secret rates and other unjust and illegal discriminations."

Preliminary disclaimers were at once made to Commissioner Garfield's allegations, but we feel that you may naturally anticipate a more elaborate and technical reply, which we submit hereunder, as to the more important points to which reference is made in Mr. Garfield's report.

It must be borne in mind that when shipments are made between two points located in different States or Territories such shipments are interstate and the rates thereon are within the jurisdiction of the Federal authorities. Shipments which are made between two points within the same State or Territory are State or intrastate shipments, and the rates thereon do not come within the jurisdiction of the Federal authorities.

NEW ENGLAND.

Mr. Garfield opens his detailed instances with the alleged refusal of the New York, New Haven & Hartford Railroad and the Boston & Maine Railroad to prorate on oil, the inference being that this gave an undue advantage to the Standard, because the latter reached coast points in New England by water and distributed oil thence by rail to the interior.

It was pointed out to the Commissioner that competitors distributed oil in the same way from Bridgeport, Conn., enjoying exactly the same rates to points on the New Haven system as those paid by the Standard from Wilson's Point, Norwalk, Conn., to the same stations, and that the same was true as to the rates given to a competitor at Beverly, Mass., as compared with the rates given to the Standard Oil Company at East Boston, Mass. Corroborative of the foregoing, President C. S. Mellen of the New York, New Haven & Hartford road has stated that "there are others operating upon our lines with the Standard Oil Company under the same circumstances and conditions." President Lucius Tuttle of the Boston & Maine Railroad says: "No man can say with the slightest semblance of truth that the Boston & Maine has ever shown any discrimination between the Standard Oil Company and any other oil producers."

THE RATES FROM OLEAN.

The Vacuum Oil Company has a refinery at Olean, N. Y., and a refinery at Rochester, N. Y. The refinery at Olean is not equipped to refine, finish and turn out the high grades of oil required by the Vacuum Oil Company's trade. The rate of nine cents per barrel was put in as a between refinery rate, and has been in force for a great many years. Why the Western New York and Pennsylvania Railroad decided to blind bill, which means that no rate was shown on the manifest, we do not know, but Vice-President Thayer of the Pennsylvania Railroad, the carrier concerned, in a published statement, says:

"It is true that there has been in effect a special rate of nine cents per barrel from Olean to Rochester, and it has not been withdrawn. This rate was originally made in 1888 by the Western New York & Pennsylvania Railroad, twelve years before the acquisition of that company by the Pennsylvania Railroad, in order to retain the railroad traffic which would otherwise have gone by pipe line. The traffic to be transported was crude oil and unfinished products moving from one refinery to another belonging to the same owners. Attention having been recently called to the wording of the tariff, which might be construed to include a refined oil and perhaps was so erroneously construed and applied in a few instances, insignificant as compared with the total traffic, the wording of the tariff was corrected so as to clearly confine the rate to crude oil and unfinished products thereof, as intended. It is not a secret rate and never has been secret. The tariff was not filed with the Interstate Commerce Commission because it applies to traffic solely within the State of New York, and tariffs upon such traffic are never filed with the commission, whose jurisdiction covers only interstate traffic."

"Reference," Vice-President Thayer continues, "is made to 'blind-billing' as if it were some secret device. This also is untrue. Its purpose is to save clerical work. This was fully explained to Commissioner Garfield's representative."

While the Commissioner dwells with emphasis upon the low rate of nine cents between Olean and Rochester, he makes no mention of a tariff of which he has knowledge showing a rate of nine cents per barrel on crude oil and ten cents on refined oil from Freemansburg, Pa., to New York Harbor, a distance but little less than that between Olean and Rochester, the rates from Freemansburg being used entirely by competitors of the Standard.

Mr. Garfield, in connection with the Olean rate, charges that owing to a certain "virtually secret" rate from Norwood, N. Y., to Burlington, Vt., the Standard enjoyed lower rates than competing shippers to the same territory. The facts are as follows: Many, perhaps fifteen, years ago the road running from Norwood, N. Y., to Burlington, Vt., asked for some of the oil traffic and issued and filed with the Interstate Commerce Commission a rate of twenty-three dollars per car. The rate from Rochester, N. Y., to Norwood, N. Y., was nine cents per 100 pounds. There was no through rate from Rochester to Burlington, via Norwood, and the Standard used, openly and without rebate, the State rates from Olean and from Rochester plus the local open published rate of twenty-three dollars per car from Norwood, N. Y., to Burlington, Vt., which had been filed at the time of issue with the Interstate Commerce Commission. There was nothing illegal in this method of shipment. The right of a shipper to use a combination of State and interstate rates as against a single rate higher than the combination has been upheld by the courts.

It is difficult to understand why the twenty-three dollar rate from Norwood, N. Y., to Burlington, Vt., is called "virtually a secret rate" when it was not only covered by a tariff filed with the Interstate Commerce Commission, but as far back as 1899 was applied to a shipment made by a competitor of the Standard. It was pointed out to Mr. Garfield that it was not at all necessary for the Standard to ship via Norwood in order to reach Burlington; that for years an interstate rate of 12 cents per 100 pounds had been in effect from New London, Conn., to Burlington, Vt., by means of which rate the Standard Oil Company could place oil in the Burlington district to as great advantage as via Norwood, and that it had made shipments via that route.

SHIPMENTS INTO THE SOUTH.

Mr. Garfield charges that the Standard Oil Company has maintained "absolute control" of the section of country south of the Ohio River and east of the Mississippi through "secret" rates and open discriminations from Whiting, Ind.

The charge covers many rate points. First comes that as to the oil entering the South through what is termed the Grand Junction, Tenn., combination. For years and by way of both the Illinois Central and the Chicago & Eastern Illinois railroads running south from Chicago the rate on refined oil from Whiting, Ind., to Grand Junction, Tenn., was 13 cents per 100 pounds, and this rate was covered by published tariffs filed with the Interstate Commerce Commission. The latter fact Mr. Garfield has omitted to state in his report. The Southern Railway had a tariff also published and

filed with the Interstate Commission, naming rates from Evansville, Ind., via Grand Junction, Tenn., to a great many points through the South. A printed division sheet issued by the Southern Railway as part and parcel of the tariff applying from Evansville bore the following notation: "On shipments of oil from points north of Evansville, via Evansville, the Southern Railway will apply rates (as shown in the division sheet) south of Grand Junction." These rates have been in force since 1898, and collections have always been made from the Standard Oil Company at the net figures; no rebates or secret settlements being involved.

It was specifically shown to the Commissioner that the combination of rates into the South via Grand Junction was not of great importance to the Standard Oil Company, because during all the time the rates to and from Grand Junction were in force the Standard Oil Company shipped fully as much oil from Whiting via Evansville and other routes at the rates prevailing to and beyond the Ohio River. The use of the Grand Junction route was simply an incident in the distribution of a part of a very large tonnage into the South. Hundreds of cars were shipped yearly into that section from Ohio and Pennsylvania shipping points by the Standard and its competitors. Shipments were also made from Buffalo and Rochester, N. Y., from Philadelphia, Pa., Baltimore, Md., Savannah, Ga., Wilmington, N. C., and New Orleans, La.

So far as the rates from Whiting to Evansville are concerned, the fact is that these rates were openly quoted by the railroads and were in force a great many years. The Standard had nothing to do with the railroad's method of manifesting. It simply paid the rates quoted to it without rebate or secret settlement of any kind.

RATE TO EAST ST. LOUIS.

Mr. Garfield complains of the application of a rate of six cents per 100 pounds on oil from Whiting, Ind., to East St. Louis, Ill., claiming that it was a "secret" rate, and that in the matter of way billing by the railroads manipulation was resorted to with the knowledge of the Standard Oil officials.

About 1890, when the refinery had been established at Whiting, Ind., the Chicago, Burlington & Quincy Railway named to the Standard Oil Company a rate of six cents per 100 pounds and issued and sent to the Standard Oil Company a rate sheet from Chicago, Ill., to East St. Louis, Ill. At the same time it advised the Standard Oil Company that under its rules the State rate of six cents per 100 pounds would apply not only from Chicago proper but from all points both in Illinois and Indiana within the so-called Chicago switching limits, and that under such rules it would absorb the switching charge per car from Whiting to its own rails, thus applying the six cent rate from Whiting to East St. Louis. Subsequently the Chicago & Alton and the Chicago & Eastern Illinois solicited a share of the business at the same rate and the business was divided between the three roads. For several years the three roads applied the six cent rate from Whiting under their widely known rule, understood by every carload shipper in Chicago and vicinity, viz., that Chicago rates would apply to and from all points within the switching limits. A number of these points are just across the border in Indiana and are the seat of important industries, viz., Whiting, East Chicago, Hammond and Indiana Harbor. The application of Chicago rates to and from these points within the switching limits is of long usage and concerns not only the shipment of oil from Whiting to points in Illinois but the shipments of many other lines of goods to similar points.

Several years ago the railroads covered the matter more specifically by filing with the Interstate Commerce Commission so-called "application sheets," providing that any rate named from Chicago to a point in Illinois or beyond down to a minimum of six cents per 100 pounds in carloads would apply from all points in Illinois or Indiana within the Chicago switching limits. Common usage established the principle of applying Chicago rates from points within the Chicago switching limits up to the time the practice was covered by application sheets filed with the Interstate Commerce Commission.

With the method of way billing, which is purely an accounting matter between the railroad agents and the railroad auditor, the shipper necessarily has nothing to do. Commissioner Garfield insisted that the Standard Oil Company must have known of the method of manifesting until it was pointed out to him with extreme care that the Chicago-East St. Louis roads hauling the traffic did not reach Whiting, and that the cars were switched to them by a Chicago switching road. All the Standard Oil Company knows of this transaction is that it delivered cars to the switching road at Whiting, consigned to East St. Louis, and that the carrying roads collected freight from the Standard Oil Company at the regular rate of 6 cents per 100 pounds. There was no secrecy about it.

While dwelling upon what he considers a low rate used by the Standard from Whiting to East St. Louis, Mr. Garfield fails to mention that in 1896 and later the same rate on oil was in force by the Illinois Central Railroad from Kankakee, Ill., to East St. Louis, for the benefit of a plant located at Kankakee and in which the Standard was in no way interested. The same road made a rate for the same shipper of 1½ cents per 100 pounds from Kankakee to Chicago, a distance of fifty-six miles. During the time the competitive plant was in operation at Kankakee the roads running west and northwest from Chicago absorbed on shipments destined to points on their lines $8 per car of the rate from Kankakee to Chicago, and as the rate was only 1½ cents per 100 pounds, it resulted in the application of Chicago rates from Kankakee, the same as were applied from Whiting.

KANSAS.

In this section of the report the only reference to Kansas is that there are some "unfair open rates"—a matter too vague to answer, and the statement that "a more important discrimination lies in the arbitrary weight fixed by the railroads on crude and fuel oil. As known to every shipper of oil in the United States it has been the general custom of the railroads to assess the weights or all the liquid products of petroleum at an estimated average of six and four-tenths pounds per gallon, and it is so expressed in the tariffs. This includes fuel oil, which weighs more than six and four-tenths pounds per gallon, and gasolene and naphthas, which weigh less. Every refiner in the United States makes interstate shipments under these conditions. An exception, however, to this general rule was made by the roads running out of Kansas. Shortly after oil was produced in large quantities in Kansas the Kansas railroads decided that since the producers of crude oil had no light products—gasolenes, naphthas—to offer that would go toward constituting an average, they should pay the actual weight on the individual product that they offered for transportation. On the theory that crude oil was not included in the general average of six and four-tenths pounds, the Kansas railroads applied a weight of seven and four-tenths pounds to crude oil. The Standard Oil Company, as explained to Mr. Garfield, objected to the advanced weight on crude oil; but its objection was unheeded by the railroads, and yet, notwithstanding the foregoing explanation, the commissioner includes the Kansas weight rule in the list of things making for favoritism from the railroads to the Standard Oil Company.

CALIFORNIA.

In California, the commissioner charges that rebates as well as discriminations by secret rates have been given on oil. This refers to State rates not within the jurisdiction of the Federal authorities. Here it is no question of the Standard Oil Company alone, but of many producers and consumers of oil.

There is no law in California requiring the railroads to file tariffs. When, therefore, the problem was presented of hauling a new and large production of oil, used to a large extent for fuel, they quoted rates to shippers according to the conditions existing from time to time. No class rates were applied to these shipments; hence overcharges were inevitable, and when made were refunded, to make the freight charges correspond with the rates quoted. There was not the slightest favoritism shown the Standard. The same rates quoted to it were quoted to others, and in many cases the rates were obtained and used by others before the Standard knew of their existence. Whenever the situation in California is such that all shipments can be covered by regular tariffs the Standard will welcome the change.

Mr. Garfield mentions certain California state rates used "in connection with interstate shipments." In reply it may be said that where the state rates were used from any point in California in connection with interstate rates from some other point in California to a point in Arizona it was necessary, because no through rates were in force from the point of shipment to destination. For example: Through rates were in force from Redondo, Cal., via the Atchison, Topeka & Santa Fe Railway, to points in Arizona on that road. On the other hand, the Southern Pacific, for reasons best known to itself, did not join in through rates from Redondo. On shipments from Redondo to points in Arizona on the Southern Pacific it was necessary to use the local rates, no matter what they might be, from Redondo to Los Angeles, plus the published tariff rates filed with the Interstate Commerce Commission from Los Angeles to point of destination. The wharf at Redondo is public, and the wharf, the state rates and the interstate rates were open to the use of any shipper.

ALLEGED SAVINGS.

The large sums of money which Mr. Garfield sets down as one year's "savings" to the Standard through the operation of certain freight rates—sums which the President aggregates as $750,000—could only have been arrived at by theorizing.

FAVORITISM THROUGH OPEN RATES.

If the claim of Commissioner Garfield was true that the Standard is favored by open rates it would involve not only collusion between the railroads and the Standard Oil Company, but collusion by the railroads with each other. It would also involve the consent of a railroad not reaching Whiting, Ind., for example, to the establishment of rates out of that point which would be injurious to business out of another point at which the consenting railroad was receiving traffic. To bring about such an arrangement would be impossible. It may be said generally that there is a competing re-

finery in almost every section of the United States where the Standard has a refinery, except at Whiting, Ind.

No rates can be made applicable to the Standard which will not be equally applicable to the Standard's competitors.

In conc.usion: After an investigation of shipments during a period of about fifteen years over more than 200,000 miles of railway the commission is not able to show that the Standard Oil Company received a single rebate on its interstate shipments. He has only been able to call attention to a few instances in which the rate situation in his opinion required explanation. This explanation was freely given and we believe would be satisfactory to any man familiar with transportation problems.

If the commissioner had any doubts as to the regularity of these rates he might have brought them to the attention of the Interstate Commerce Commission when the questions at issue could have been heard and determined. In the absence of such determination it is surely not within the limits of fairness for the Bureau of Corporations to cast aspersions upon a great corporation.

The company owns and controls only a very moderate percentage of the crude oil production of the United States, and with at least one hundred and twenty-five rival refineries in existence it is a palpable absurdity to call it a monopoly. For the last quarter of a century more than 60 per cent. of its output has been shipped to foreign countries. In creating and sustaining this vast foreign trade the company has encountered innumerable obstacles and incessant competition from other petroleum industries possessing the advantages of geographical location and cheaper labor, and which are oftentimes developed under the fostering care of their respective governments. If the company maintains a gratifying percentage of the world's commerce it is because it keeps its agreements and delivers products of reliable quality at reasonable prices. Whatever measure of prosperity it has enjoyed is not traceable to illegal or reprehensible methods, but to its economic and elaborate industrial organization, covering, as it does, every detail of transportation, manufacture and administration. By order of the board of directors. C. M. PRATT, Secretary.

Train Accidents in the United States in April.[1]

unx, 2d, Pennsylvania road, Rockland, Pa., a work train going to pick up a wreck was derailed and the fireman and one other trainman were killed. Four employees on the ground were injured.

unx, 2d, Chesapeake & Ohio, Mentor, Ky., freight train No. 65 was derailed and wrecked and one brakeman was killed.

o, 2d, Lake Shore & Michigan Southern, Amherst, Ohio, the locomotive of a freight train was wrecked by the explosion of its boiler, and two men were injured, one of them fatally.

dr, 3d, St. Louis & San Francisco, Wister Junction, Ind. T., passenger train No. 6 was derailed by a broken rail and three passenger cars were ditched, one of them, a sleeping car, being overturned. Ten passengers were injured, but all of the injuries were slight. The sleeping car conductor was seriously injured.

dn, 4th, Norfolk & Western, Juniper Siding, Va., a passenger train was derailed at a misplaced switch. Four trainmen were injured, one of them fatally.

dr, 5th, Chicago, Burlington & Quincy, St. Michael, Neb., westbound passenger train No. 41 was derailed by spreading of rails, and two baggage cars were overturned. The first seven passenger cars were badly damaged. The train was well filled with passengers, but, according to the report, only four persons were injured. The gas tank in one of the chair cars caught fire, but was thrown out of the car before it exploded. An explosion took place and the wreck caught fire, but the flames were soon extinguished.

dn, 6th, 9 p.m., Baltimore & Ohio, Swanton, Md., a westbound freight train ascending a grade with a pushing engine at the rear was derailed by the buckling of the train in the middle, and one car fell on the eastbound track. Eastbound passenger train No. 12, coming along a moment afterward, ran into the wreck and was derailed. The passenger engine was thrown against the side of the mountain and the engineman was killed. Two other trainmen were injured.

unx, 6th, Southern Railway, Salisbury, N. C., freight train No. 72 was derailed and 15 loaded cars broke through an iron bridge, knocking it down.

unx, 9th, Mobile & Ohio, Sugar Creek, Ill., passenger train No. 2 was derailed and the engine and first four cars were ditched. The engineman, fireman and four other persons were injured.

unx, 9th, Erie road, Buffalo, N. Y., an eastbound passenger train was derailed and the engine was overturned. The engineman was killed and the fireman and three passengers were injured.

unx, 9th, West Virginia Central & Pittsburg, Dawson, Md., a work train going to the relief of a passenger train which had been detained by a landslide, was derailed and the engine was overturned. The engineman and fireman were killed.

rc, 10th, 5 a.m., New York, Philadelphia & Norfolk, Exmore, Va., a freight train which had broken in two was run into at the rear by a following passenger train, and the engine and several cars were wrecked. The engineman and fireman were killed. There was a dense fog at the time.

eq, 10th, 9 p.m., Atlantic Coast Line, Winona, S. C., fast mail train No. 82 was derailed by the failure of the tire of one of the wheels of the tender, and the first four cars were thrown at right angles to the track and badly damaged. It is said that none of the occupants of the train were injured.

bc, 13th, Southern Railway, Statesville, N. C., butting collision between a regular freight train going down grade and an extra freight going up, badly damaging both engines. It is said that the regular train was running at 50 miles an hour. The men on both engines jumped off and all except one escaped with slight injuries. The failure of an operator to deliver an order is said to have been the cause of the collision.

unx, 13th, Chicago & North-Western, McNaughton, Wis., a freight train was derailed and several cars were wrecked; one man was killed.

unx, 16th, Louisville & Nashville, Zion, Ky., a passenger train was derailed and the engine was overturned. The engineman was killed and the fireman and four other trainmen were injured.

rc, 17th, Pennsylvania road, New Florence, Pa., an eastbound express train which had been stopped on account of the breaking out of a fire in the baggage car was run into at the rear by a following freight train, badly damaging the rear passenger car. Eight passengers were injured. It is said that a block signalman gave a clear signal to the freight, ignoring the fact that the passenger train had not passed out of the block section.

bc, 17th, Louisville & Nashville, Richmond, Ky., butting collision between southbound freight train No. 45 and a work train running north, making a bad wreck. Eight employees were injured, three of them probably fatally. It is said that the men in charge of the work train had overlooked a change in a new time-table.

o, 17th, Atlantic Coast Line, Manchester, Va., a locomotive was wrecked by the explosion of its boiler and the fireman was scalded.

19th, Cumberland Valley, Shippensburg, Pa., collision of switching freight trains; one trainman killed, one injured.

xc, 25th, Shreveport, La., a switching train of the Kansas City Southern collided with a passenger train of the Texarkana, Shreveport & Natchez at the crossing of the two roads and two cars were wrecked. The baggageman and a mail clerk were injured.

25th, Lehigh Valley, Yatesville, Pa., the engine and three cars of a freight train were derailed by an explosion of dynamite, evidently malicious, and the engineman and fireman were injured.

bc, 26th, Southern Railway, Marion, N. C., butting collision of freight trains; three trainmen injured.

dn, 26th, Southern Railway, Chatham, Va., a freight train was derailed, evidently by running too fast; one employee killed and two injured.

unx, 26th, Southern Railway, Pomona, N. C., a freight train was derailed and the engine was overturned. The fireman was killed and the engineman injured.

o, 27th, Pennsylvania road, Harrisburg, Pa., the locomotive of a freight train was wrecked by the explosion of its boiler; the engineman was killed and two other trainmen were fatally injured.

*unf, 27th, Chicago, Burlington & Quincy, Chalco, Neb., a passenger train was derailed by running into the wreck of an overhead bridge which had taken fire and fallen to the track. The train was brought to a stand with the two passenger cars in the midst of the fire, and these were destroyed. The gas tanks of the cars exploded and blew the cars to pieces. The engineman, fireman and one passenger were slightly injured.

*unx, 29th, Northern Pacific, Reid, Mont., a freight train was derailed and three trainmen and several tramps were injured, and the engineman and fireman were burned to death in a fire which consumed most of the wreck.

dr, 29th, 8 p.m., Southern Railway, Anniston, Ala., westbound passenger train No. 37 was derailed at a defective switch and the baggageman was killed. Twelve passengers were injured.

dn, 30th, Colorado & Southern, Forks Creek, Colo., a passenger train, narrow gage, which was being separated at the top of a grade, became uncontrollable and a part of the cars broke loose and ran down the steep grade without attendance. Hand-brakes were applied, but without effect, and at the first sharp curve the cars were thrown down a bank, and 21 passengers were injured.

unx, 30th, Baltimore & Ohio, Triadelphia, W. Va., a special

[1] Accidents in which injuries are few or slight and the money loss is apparently small, will, as a rule, be omitted from this list. The official accident record, published by the Interstate Commerce Commission quarterly, is regularly reprinted in the *Railroad Gazette*. The classification of the accidents in the present list is indicated by the use of the following

ABBREVIATIONS.

rc	Rear collisions.
bc	Butting collisions.
xc	Miscellaneous collisions.
dr	Derailments; defects of roadway.
eq	Derailments; defects of equipment.
dn	Derailments; negligence in operating.
unf	Derailments; unforeseen obstruction.
unx	Derailments; unexplained.
o	Miscellaneous accidents.

An asterisk at the beginning of a paragraph indicates a wreck wholly or partly destroyed by fire; a dagger indicates an accident causing the death of one or more passengers.

train, carrying officers of the road, was derailed, and the superintendent was injured.

unx, 30th, Atchison, Topeka & Santa Fe, Orange, Cal., a passenger train was derailed while running at full speed, and the first three cars were wrecked. Several passengers and trainmen were injured.

Destruction of Creosoted Piles.

These pictures show creosoted piles that are very badly eaten by teredos and limnoria. In the vicinity of Puget Sound, according to Mr. A. Stewart, Assistant Chief Engineer of the Great Northern at Seattle, a stick of timber, rough sawed, will last about eight months, a peeled pine will last a year, a pile with the bark on will last a year and a half, while a creosoted pile will last from 15 months to 15 years. The unfortunate part of it is that two piles treated and driven under the same conditions will be affected differently by the teredo and limnoria.

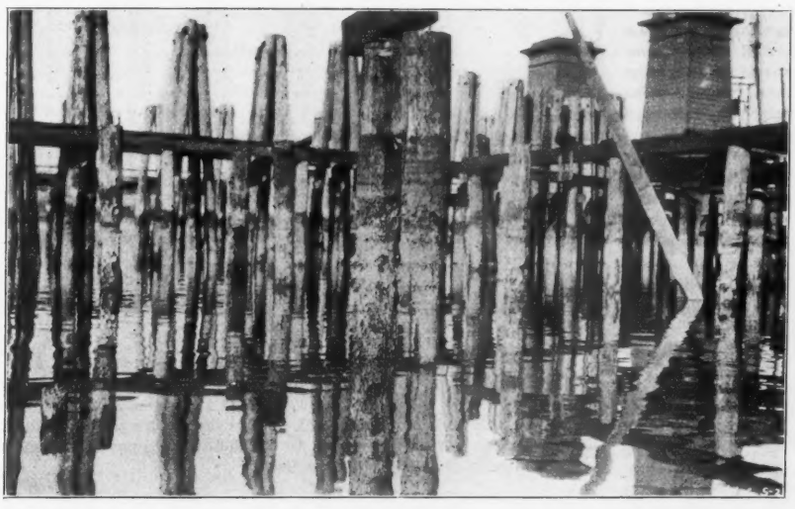


Fig. 1.

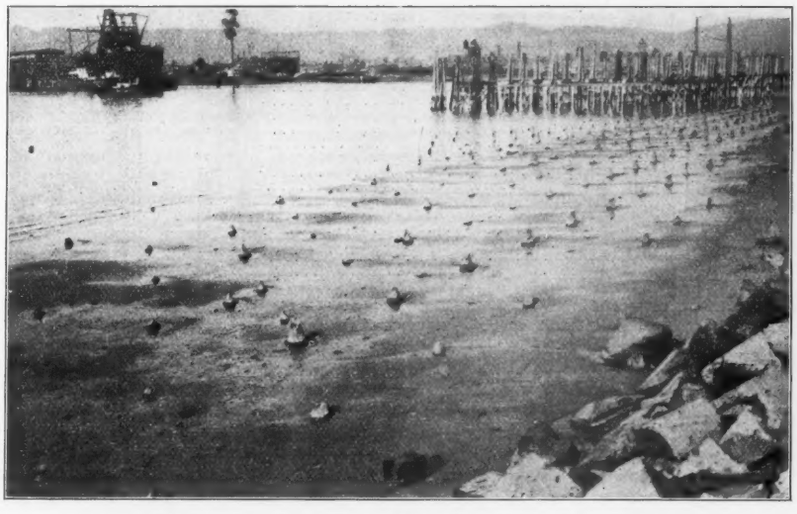


Fig. 3.

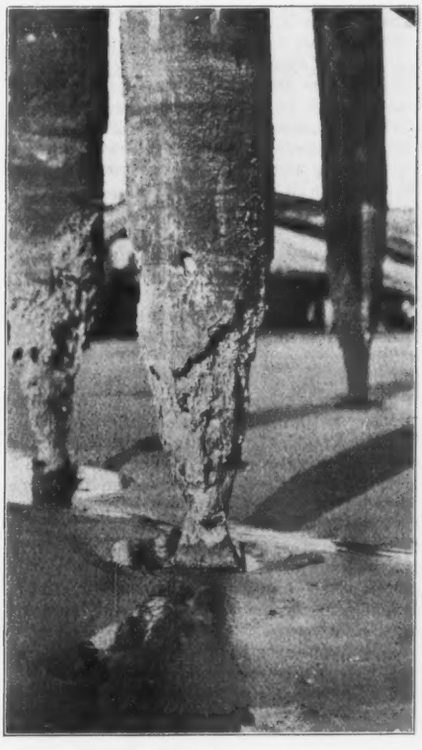


Fig. 2.

Washington Correspondence.

WASHINGTON, May 22.—The Hepburn railroad rate bill is now in its last legislative stage and the finishing touches will be put on it by the conferees of the Senate and House of Representatives. As it is usually the case with a bill that is materially and hastily amended, some of the amendments made by the Senate are not satisfactory even to the men who were chiefly instrumental in securing their adoption, and some of them conflict with each other. It is probable that more men in both Houses of Congress are dissatisfied with the anti-pass amendment than with any other that was adopted by the Senate. It is now generally recognized that the Senate amendment fails to permit the giving of passes to many persons who should be entitled to receive them. For instance, under the amendment as it now stands, passes or free transportation could not be given to Pullman employees, railroad mail clerks, representatives of baggage transfer companies, employees of contractors working on the line of a road and to many other classes for whom free transportation is almost necessary. In the opinion of some of the conferees the Senate amendment, by prohibiting free transportation generally and then making a long list of exceptions, many of which are ridiculous, goes at the matter from the wrong end. They believe that it would be better to specify the classes of persons who shall not be given free transportation and allow the roads to use their discretion as to all others. An effort will be made in conference to put the amendment into this shape. It is contended that unless this is done, even though the list of exceptions should be greatly extended, there would be danger of leaving out some classes who should have free transportation.

There is serious conflict between the amendment making the act apply to pipe line companies and declaring them to become common carriers and that providing that from and after May 1, 1908, it shall be unlawful for any common carrier to transport in interstate or foreign commerce any article or commodity, other than timber and the manufactured products thereof, manufactured, mined, or produced by it or under its authority or which it may own in whole or in part, or in which it may have any interest, direct or indirect, except such articles or commodities as may be necessary and intended for its own use in the conduct of its business as a common carrier. These two amendments taken together would prevent the transportation across state lines by means of any pipe line of any oil or other commodity, except water or natural or artificial gas, that might be owned by the owner of the pipe line or in which the owner of the pipe line might have any interest. It is obvious that this would put many of the pipe lines out of business or would compel oil companies owning such lines to sell them to independent corporations. It is expected that the conferees will change these amendments so as to remove the existing conflict between them.

An effort is to be made to have the provision requiring the filing with the Interstate Commerce Commission and the posting for public inspection of all rates, fares and charges so amended as not to require the filing and publication of through rates to points in foreign countries not contiguous to the United States. As the bill now stands it would require the filing and publication of every through rate, whether by an all-rail route, by pipe line, or by rail in conjunction with water. It is contended that the application of this requirement to trans-oceanic rates would tend to hamper the foreign commerce of the United States.

Another amendment that is being much criticised is that re-

lating to bills of lading which proposes to make the road on which the traffic originates liable to the holder of the bill of lading for any loss, damage or injury whether such loss, damage or injury is caused by the originating road or by any common carrier, railroad, or transportation company to which the property may be delivered or over whose line or lines it may pass, subject to a provision entitling the originating road to recover from the carrier, road or company responsible for the loss or damage. This is criticised as being virtually a requirement that the originating road shall insure the safe transportation of property beyond its own lines. It is not certain, however, that the conferees will change this provision in any way.

As the bill passed the House the provision for the enforcement by the courts of any order of the Interstate Commerce Commission, other than for the payment of money, required the court to enforce the order if it was found that it was regularly made and duly served. The Senate amended this by substituting the word "lawfully" for "regularly." This amendment has been much criticised by some of the members of the House Committee, and such a conservative Senator as Mr. Spooner has declared that it was a mistake. It is probable, therefore, that the word "regularly" will be restored. This might have been a matter of great importance to the railroads if the Senate had not incorporated in the bill express provision for judicial review without denying to the courts authority to suspend an order pending review. With the review provision in the bill it is not probable that the Interstate Commerce Commission will often be called upon to institute proceedings for the enforcement of an order and some railroad attorneys take the view that it makes very little difference which word is used.

It is possible that the conferees may do something with the Senate amendments putting the express companies and sleeping car companies under the provision of the law and requiring carriers engaged in interstate commerce to give equally good service and accommodations to all persons paying the same compensation for interstate transportation of passengers. Some of the southern men in Congress are very much afraid that these two amendments taken together will have the effect of nullifying the "Jim Crow" car laws of the southern states so far as they apply to interstate passengers, and they are endeavoring to have these amendments eliminated. In this they are obtaining assistance from an unexpected source, as there has been a delegation of negroes from Boston at the Capitol opposing the retention of these provisions on the ground that it is better for the negroes of the United States to base their contention for equal treatment on the broad general language of the Fourteenth Amendment to the Constitution rather than upon a statutory provision.

All indications now point to a speedy agreement by the conferees and to the adoption of the conference report in both houses without serious opposition. There has been some loose talk about the possibility of President Roosevelt's vetoing the bill on account of the elimination of the words "in its judgment" from the rate-making section. This is perfectly absurd, however. As a matter of fact the President gave his approval to the proposition for the elimination of these words before the Senate had voted on Senator Teller's motion to strike them out. Even if he had not consented to this amendment there is every reason to believe that Mr. Roosevelt would sign the bill. On the whole, it is a substantial victory for him and carries out the spirit of his original recommendation to Congress on this subject that "the Commission should be vested with the power, where a given rate has been challenged and after full hearing found to be unreasonable, to decide, subject to judicial review, what shall be a reasonable rate to take its place; the ruling of the Commission to take effect immediately, and to obtain unless and until it is reversed by the court of review." J. C. W.

Instruction of German Employees.

There has been a course of instruction established at Dresden for the education of railroad officials and employees. The following courses of lectures were given, all by officials practically engaged in the state service; six on safety precautions in railroad operation, five on the relations of railroad construction to railroad operation, four on traffic geography, six on passenger traffic, five on railroad freight law and on rates, six on the constitution of the German Empire and its development, six on operation service, eight on railroad superstructure, tunnels and bridges; 12 on questions of railroad policy, and six on hygiene.

Lumber Cut of the United States in 1905.

The Forest Service of the United States Department of Agriculture sends this preliminary statement:

The work of gathering and compiling the figures on the lumber cut during 1905 has been done by the Forest Service in co-operation with the National Lumber Manufacturers' Association. The summary here presented is based upon the reports of 11,649 firms.

The results given are necessarily incomplete, since many firms have as yet failed to furnish the necessary information. In completing these figures the secretaries of the various lumber associations are co-operating most effectively. A more complete statement will be issued when all reports have been received.

Lumber.

State.	Number of Firms Reporting.	Lumber, Million Feet, B. M.	Total Cut, Per Cent.	Conifers, Million Feet.	Hardwoods, Million Feet.
Washington	425	3,010	10.8	3,010	....
Louisiana	209	2,043	7.3	1,987	56
Wisconsin	408	1,990	7.2	1,640	350
Minnesota	173	1,718	6.2	1,692	26
Michigan	437	1,676	6.0	1,095	581
Arkansas	853	1,457	5.2	1,080	377
Pennsylvania	701	1,342	4.8	998	344
Oregon	319	1,252	4.5	1,246	6
Mississippi	342	1,226	4.4	1,014	212
California	196	1,219	4.4	1,219	....
North Carolina	633	999	3.6	835	164
Texas	159	881	3.2	865	16
Alabama	326	841	3.0	754	87
Georgia	349	710	2.5	676	34
Virginia	452	708	2.5	554	154
Maine	364	695	2.5	659	36
Florida	122	652	2.3	652	....
West Virginia	284	545	2.0	309	236
Tennessee	499	544	2.0	40	504
Kentucky	431	467	1.6	36	431
New York	1,014	446	1.6	360	86
Missouri	223	353	1.3	185	168
South Carolina	194	351	1.3	325	26
Indiana	461	350	1.3	....	350
Ohio	541	331	1.2	329	2
New Hampshire	269	329	1.2	300	29
Vermont	284	265	1.0	170	95
Massachusetts	249	239	.9	217	22
Montana	23	231	.8	231	....
Idaho	54	197	.7	192	5
Maryland	113	164	.6	116	48
Illinois	176	120	.4	34	86
Iowa	29	107	.4	98	9
All others	337	279	1.0	206	73
Total	11,649	27,738	100.0	23,225	4,613

The following table separates the cut by species and shows the relative position each species occupies in the lumber cut of the country. The stock on hand January 1, 1906, is also given, and its percentage of the amount cut. The stock of western white pine is doubtless in excess of the true figure, due to confusion in reporting sugar and other related pines with this species.

Kind.	Total Cut. Million Feet.	Total Cut. Per Cent.	Stock on Hand. Million Feet.	Stock on Hand. Per Cent. of Cut.
Yellow pine	8,217	29.8	1,175	15
Douglas fir	3,614	13.0	455	13
Northern pine	3,229	11.6	743	23
Hemlock	2,569	9.3	436	17
Spruce	1,128	4.0	142	13
White oak	1,071	3.9	284	27
Western pine	1,013	3.7	205	20
White pine	849	3.5	813	96
Cypress	697	2.5	341	49
Red oak	603	2.2	101	17
Poplar	580	2.1	193	33
Maple	507	1.8	167	33
Redwood	497	1.8	120	24
Red gum	307	1.1	97	32
Birch	275	1.0	80	29
Basswood	227	.8	81	36
Cottonwood	219	.8	86	39
Elm	214	.8	56	26
Chestnut	214	.8	54	25
Cedar	208	.7	59	28
Beech	206	.7	52	25
Ash	152	.7	40	26
Sugar pine	107	.4	32	30
Western white pine	105	.4	146	139
Hickory	93	.3	11	12
Larch	67	.2	35	52
Tamarack	62	.2	16	26
Tupelo	35	.1	15	43
Balsam	34	.1	7	21
Walnut	28	.1	9	32
Mixed	467	1.7	453	97
Total	27,738	100.0	6,504	....

Shingles.

	No. Firms Reporting.	No. Millions.	Per Cent. of Total Cut.
Washington	379	8,438	60.8
California	71	562	4.1
Oregon	47	139	1.0
All others	1,448	4,729	34.1
Total	1,945	13,868	100.0

Species.	Cut. Millions.	Cut. Per Cent.
Western red cedar	7,523	54.2
Cypress	1,415	10.2
Eastern cedar	1,248	9.0
Fir	911	6.6
Redwood	498	3.6
Yellow pine	440	3.2
White pine	368	2.7
Hemlock	134	1.0
Mixed white and Norway pine	82	.6
Port Orford cedar	72	.5
Spruce	54	.4
Larch	47	.3
Mixed	1,076	7.7
Total	13,868	100.0

Total	80,051,000	100.0	....	....

LATH.

The total output of laths for all states and species is 2,910,000,000.

CROSS-TIES PURCHASED BY THE STEAM RAILROAD COMPANIES DURING 1905.

Probably no product of the forest has been the subject of more

discussion and diversity of opinion than the annual consumption of cross-ties in the United States.

The following statements are made possible by the almost unanimous co-operation of the steam railroads with the Forest Service in furnishing the necessary data. While these statements are nearly complete for the purchases of cross-ties by steam transportation companies, they are below the total number of cross-ties used, since no reports from electric lines are included. The figures given are based upon reports from 750 companies, having an aggregate trackage of 278,262 miles. Since, according to Poor's Manual for 1905, the total trackage of the railroads in the United States is 293,937 miles, it follows that the mileage reported is 95 per cent. of the total. Switch ties have been figured into the equivalent number of cross-ties.

The total number of ties reported is 80,051,000, of which 22,569,000, or 36 per cent., were to be used for the construction of new track.

On this basis the total number of ties used by the steam railroads would be 84,400,000, representing nearly 3,000,000,000 feet of lumber, board measure.

Cross-ties Purchased, 1905.

Kind.	Number.	Per Cent. of Total.	Hewed, Per Cent.	Sawed, Per Cent.
Oak	38,055,000	47.5	88.1	11.9
Pine	17,496,000	21.9	67.3	32.7
Cedar	6,911,000	8.7	69.3	30.7
Chestnut	4,675,000	5.8	69.5	30.5
Fir	3,485,000	4.4	39.8	60.2
Cypress	3,383,000	4.2	88.9	11.1
Tamarack	3,335,000	4.2	99.0	1.0
Hemlock	1,675,000	2.1	93.4	6.6
All others	1,036,000	1.2	76.0	24.0
Total	80,051,000	100.0	....	....

The per cent. of the total number of ties of each kind obtained from the various regions is as follows:

Source of Supply.

Kind.	Regions. North Atlantic States.	Southern States.	Central States.	Lake States.	Rocky Mountain States.	Pacific Coast States.	Total.
	Per Cent.	Per Cent.	Per Cent.	Per Cent.	Per Cent.	Per Cent.	Per Cent.
Oak	12	33	54	1	..	..	100
Pine	..	81	..	4	10	5	100
Cedar	11	..	..	88	..	1	100
Chestnut	93	3	4	..	..	..	100
Fir	..	..	..	..	35	65	100
Cypress	..	100	..	..	..	..	100
Tamarack	1	..	..	91	7	1	100
Hemlock	7	..	..	93	..	..	100
All others	16	7	1	5	14	57	100

Preservative treatment was given to 7,615,000 ties, representing nearly 10 per cent. of the total number reported. Although the species of timber treated have not been separated in most cases, it is safe to say that almost all of the ties treated were softwoods.

The regions referred to in the preceding table include the following states:

North Atlantic States.—New England states, New York, Pennsylvania, New Jersey, Delaware, Maryland.

Southern States.—Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Arkansas, Texas, Indian Territory.

Central States.—Ohio, West Virginia, Kentucky, Tennessee, Indiana, Illinois, Missouri.

Lake States.—Michigan, Wisconsin, Minnesota.

Rocky Mountain States.—Montana, Idaho, Wyoming, Nevada, Utah, Colorado, Arizona, New Mexico.

Pacific Coast States.—Washington, Oregon, California.

W. C. Brown on the Railroad Y. M. C. A.*

Great and gratifying as has been the material improvement of the last 30 years in the railroad world, it is dwarfed into insignificance by the marvelous improvement in and the grand uplifting of railroad men; and it is because I appreciate and rejoice in this improvement and recognize from whence in a very large measure it has come, that I am glad to participate in the dedication of this building to the service of God and to the comfort and convenience of railroad men, located, as it is, almost at the birthplace of the railroad department of the Young Men's Christian Association. The work of the Young Men's Christian Association among railroad men was commenced in Cleveland in 1873 by earnest, Christian men in evangelical services held in railroad shops, roundhouses and depots. General John H. Devereaux, afterwards President of the Big Four road, was deeply interested in the work, and set apart a room in the passenger station for the use of the little association at that time founded. How wisely he builded, how much he did for railroads, as well as for railroad men, in thus encouraging this work in its infancy, no one can undertake to estimate.

Eliminate from consideration if you will the religious and the educational features entirely—inestimably important as they are—and consider only the simple proposition of a clean, wholesome place to sleep and eat, free from the temptations which surround the young man employed on a railroad, under the most favorable circumstances, when thrown upon his own resources, and in my opinion no investment of a similar amount of money has ever paid or can ever pay, so large a return as the money devoted to the construction and maintenance of these railroad departments of the Young Men's Christian Association.

If a railroad officer, seeking an excuse to decline to make a contribution of this character, propounds the ancient interrogatory "Am I my brother's keeper," the reply should be emphatically in the affirmative. The railroad which annually draws thousands of young men from the villages and farms to fill up its ranks, depleted by age, accident and disease, owes something to this army of young men. They owe it to the men themselves; they owe it to anxious, loving fathers and mothers back in the homes from whence these young men came; above all, they owe it to the public who daily place in the care and custody of these men their lives and property, to do everything within their power to make them the best, safest, most efficient men possible; and in doing this, in my opinion, no agency can be enlisted so adapted, so consecrated, so devoted to the work, and so successful in the work, as the railroad branch of the Young Men's Christian Association.

*From an address by W. C. Brown, Vice-President of the New York Central Lines, at the opening of a new railroad Y. M. C. A. building at Collinwood, Ohio, on the Lake Shore & Michigan Southern, May 1.

The Railroad Rate Bill.

As we go to press, the Hepburn bill, much modified by amendments, has gone to conference. We are reproducing it in full, in the form in which it went into the hands of the Committee, and subsequent changes will be noted.

AN ACT

To amend an Act entitled "An Act to regulate commerce," approved February fourth, eighteen hundred and eighty-seven, and all Acts amendatory thereof, and to enlarge the powers of the Interstate Commerce Commission.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That section one of an Act entitled "An Act to regulate commerce," approved February fourth, eighteen hundred and eighty-seven, be amended so as to read as follows:

"Section 1. That the provisions of this Act shall apply to any corporation or any person or persons engaged in the transportation of oil or other commodity, except water and except natural or artificial gas by means of pipe lines or partly by pipe lines and partly by railroad or partly by pipe lines and partly by water, who shall be considered and held to be common carriers within the meaning and purpose of this Act, and to any common carrier or carriers engaged in the transportation of passengers or property wholly by railroad (or partly by railroad and partly by water when both are used under a common control, management, or arrangement for a continuous carriage or shipment), from one state or territory of the United States or the District of Columbia, to any other State or Territory of the United States or the District of Columbia, or from one place in a territory to another place in the same territorly, or from any place in the United States to an adjacent foreign country, or from any place in the United States through a foreign country to any other place in the United States, and also to the transportation in like manner of property shipped from any place in the United States to a foreign country and carried from such place to a port of transshipment, or shipped from a foreign country to any place in the United States and carried to such place from a port of entry either in the United States or an adjacent foreign country: Provided, however, That the provisions of this Act shall not apply to the transportation of passengers or property, or to the receiving, delivering, storage, or handling of property wholly within one state and not shipped to or from a foreign country from or to any state or territory as aforesaid.

DEFINITION OF TERM "COMMON CARRIER."

"The term 'common carrier,' as used in this Act, shall include express companies and sleeping-car companies. The term 'railroad,' as used in this Act, shall include all bridges and ferries used or operated in connection with any railroad, and also all the road in use by any corporation operating a railroad, whether owned or operated under a contract, agreement, or lease, and shall also include all switches, spurs, tracks and terminal facilities of every kind used, or necessary in the transportation of the persons or property designated herein, and also all freight depots, yards and grounds used or necessary in the transportation or delivery of any of said property; and the term 'transportation' shall include cars and other vehicles and all instrumentalities and facilities of shipment or carriage, irrespective of ownership or of any contract, express or implied, for the use thereof and all services in connection with the receipt, delivery, elevation, and transfer in transit, ventilation, refrigeration or icing, storage, and handling of property transported; and it shall be the duty of every carrier subject to the provisions of this Act to provide and furnish such transportation upon reasonable request therefor, and to establish through routes and just and reasonable rates applicable thereto.

"All charges made for any service rendered or to be rendered in the transportation of passengers or property as aforesaid, or in connection therewith, shall be just and reasonable; and every unjust and unreasonable charge for such service or any part thereof is prohibited and declared to be unlawful."

PENALTIES FOR GRANTING FREE TRANSPORTATION TO PASSENGERS

No carrier subject to the provisions of this Act shall hereafter, directly or indirectly, issue or give any interstate free ticket, free pass, or free transportation for passengers, except to its officers, agents, employes, surgeons, physicians, actual and bona fide attorneys, and members of their immediate families; to ministers of religion, local and traveling secretaries of Young Men's Christian Associations, inmates of hospitals and charitable and elee-

monsynary institutions; to indigent, destitute and homeless persons, and to such persons when transported by charitable societies or hospitals, and the necessary agents employed in such transportation; to inmates of the national homes or state homes for disabled volunteer soldiers, and of soldiers' and sailors' homes, including those about to enter and those returning home after discharge, under arrangements with boards of managers, and female nurses that served during the Civil War; to ex-Union soldiers and sailors and ex-Confederate soldiers, and to owners and caretakers of livestock when traveling with such stock or when going to point of shipment or returning from point of delivery; provided, that this provision shall not be construed to prohibit the interchange of passes for the officers, agents, employees of carriers and members of their immediate families, nor to prohibit any carrier from carrying passengers free with the object of providing relief in cases of general epidemic, pestilence or other calamitous visitations, nor prevent such carrier from giving free or reduced transportation to laborers transported to any place for the purpose of supplying any demand for labor at such place. Any carrier violating this provision shall be deemed guilty of a misdemeanor and shall for each offense pay to the United States a penalty of not less than $100 nor more than $2,000, and any person, other than the persons excepted in this provision, who uses, or who solicits or accepts for himself or other person, any such interstate free ticket, free pass or free transportation, shall be subject to a like penalty and fine. Jurisdiction of offenses under this provision shall be the same as that provided for offenses in an Act entitled "An Act to further regulate commerce with foreign nations and among the states," approved Feb. 19, 1903, and any amendment thereof.

"From and after May first, nineteen hundred and eight, it shall be unlawful for any common carrier to transport from any state, territory or district of the United States to any other state, territory or distict of the United States or to any foreign country any article or commodity, other than timber and the manufactured products thereof, manufactured, mined or produced by it or under its authority or which it may own in whole or in part, or in which it may have any interest, direct or indirect, except such articles or commodities as may be necessary and intended for its own use in the conduct of its business as a common carrier.

INSTALLATION OF PRIVATE SWITCHES COMPULSORY.

"Any common carrier subject to the provisions of this Act shall promptly, upon application of any shipper tendering interstate traffic for transportation, construct, maintain and operate upon reasonable terms a switch connection with any private sidetrack which may be constructed to connect with its railroad, where such connection is reasonably practicable and can be put in with safety and will furnish sufficient business to justify the construction and maintenance of the same; and shall furnish cars for the movement of such traffic to the best of its ability without discrimination in favor of or against any such shipper.

"If any common carrier shall fail to install and operate any such switch or connection as aforesaid, on application therefor in writing by any shipper, such shipper may make complaint to the commission, as provided in section thirteen of this Act, and the commission shall hear and investigate the same and shall determine as to the safety and practicability thereof and justification and reasonable compensation therefor, and the commission may make an order, as provided in section fifteen of this Act, directing the common carrier to comply with the provisions of this section in accordance with such order, and such order shall be enforced as hereinafter provided for the enforcement of all other orders by the commission, other than orders for the payment of money.

"It shall be the duty of carriers engaged in interstate commerce to give equally good service and accommodations to all persons paying the same compensation for interstate transportation of passengers."

Sec. 2. That section six of said Act, as amended March second, eighteen hundred and eighty-nine, be amended so as to read as follows:

"Sec. 6. That every common carrier subject to the provisions of this Act shall file with the commission created by this Act and print and keep open to public inspection schedules showing all the rates, fares, and charges for transportation between different points on its own route and between points on its own route and points on the route of any other carrier by railroad, by pipe line or by water when a through route and joint rate have been established. The schedules printed as aforesaid by any such common carrier shall plainly state the places between which property and passengers will be carried, and shall contain the classification of freight in force, and shall also state separately all terminal charges, storage charges, icing charges, and all other charges which the commission may require, all special privileges or facilities granted or allowed and any rules or regulations which in any wise change, affect or determine any part, or the aggregate of such aforesaid rates, fares, and charges of the value of the service rendered to the passenger, shipper, or consignee. Such schedule shall be plainly printed in large type, and copies for the use of the public shall be kept posted in two public and conspicuous places in every depot, station, or office of such carrier where passengers or freight, respectively, are receivel for transportation, in such form that they shall be accessible to the public and can be conveniently inspected. The provisions of this section shall apply to all traffic, transportation, and facilities defined in section one of this Act.

"Any common carrier subject to the provisions of this Act receiving freight in the United States to be carried through a foreign country to any place in the United States shall also in like manner print and keep open to public inspection, at every depot or office where such freight is received for shipment, schedules showing the through rates established and charged by such common carrier to all points in the United States beyond the foreign country to which it accepts freight for shipment; and any freight shipped from the United States through a foreign country into the United States the through rate on which shall not have been made public, as required by this Act, shall, before it is admitted into the United States from said foreign country, be subject to customs duties as if said freight were of foreign production.

"No change shall be made in the rates, fares, and charges or joint rates, fares, and charges which have been filed and published by any common carrier in compliance with the requirements of this section, except after thirty days' notice to the commission and to the public published as aforesaid, which shall plainly state the changes proposed to be made in the schedule then in force and the time when the changed rates, fares, or charges will go into effect; and the proposed changes shall be shown by printing new schedules, or shall be plainly indicated upon the schedules in force at the time and kept open to public inspection: Provided, That the commission may, in its discretion and for good cause shown, allow changes upon less than the notice herein specified, or modify the requirements of this section in respect to publishing, posting, and filing of tariffs, either in particular instances or by a general order applicable to special or peculiar circumstances or conditions.

"The names of the several carriers which are parties to any joint tariff shall be specified therein, and each of the parties thereto, other than the one filing the same shall file with the commission such evidence of concurrence therein or acceptance thereof as may be required or approved by the commission, and where such evidence of concurrence or acceptance is filed it shall not be necessary for the carriers filing the same to also file copies of the tariffs in which they are named as parties.

"Every common carrier subject to this Act shall also file with said commission copies of all contracts, agreements, or arrangements with other common carriers in relation to any traffic accepted by the provisions of this Act to which it may be a party.

"The commission may determine and prescribe the form in which the schedules required by this section to be kept open to public inspection shall be prepared and arranged and may change the form from time to time as shall be found expedient.

PASSENGER RATES MUST BE FILED AND PUBLISHED.

"No carrier shall, unless otherwise provided by this Act, engage or participate in the transportation of passengers or property, as defined in the first section of this Act, unless the rates, fares and charges upon which the same are transported by said carrier have been filed and published in accordance with the provisions of this section; nor shall any carrier charge or demand or collect or receive a greater or less or different compensation for such transportation of passengers or property, or for any service in connection therewith, between the points named in such tariffe than the rates, fares, and charges which are specified in the tariff filed and in effect at the time; nor shall any carrier refund or remit in any manner or by any device any portion of the rates, fares, and charges so specified, nor extend to any shipper or person any privileges or facilities in the transportation of passengers or property, except such as are specified in such tariffs.

"That in time of war or threatened war preference and precedence shall, upon the representation of the President of the United States of the need therefor, be given, over all other traffic, to the transportation of troops and material of war, and carriers shall adopt every means within their control to facilitate and expedite the military traffic."

That section one of this Act entitled "An Act to further regulate commerce with foreign nations and among the states," approved February nineteenth, nineteen hundred and three, be amended so as to read as follows:

"That anything done or omitted to be done by a corporation common carrier subject to the Act to regulate commerce and the Acts amendatory thereof, which, if done or omitted to be done by any director or officer thereof, or any receiver, trustee, lessee, agent, or person acting for or employed by such corporation, would constitute a misdemeanor under said Acts or under this Act, shall also be held to be a misdemeanor committed by such corporation, and upon conviction thereof it shall be subject to like penalties as are prescribed in said Acts or by this Act with reference to such persons, except as such penalties are herein changed. The willful failure upon the part of any carrier subject to said Acts to file and publish the tariffs or rates and charges as required by said Acts, or strictly to observe such tariffs until changed according to law, shall be a misdemeanor, and upon conviction thereof the corporation offending shall be subject to a fine of not less than one thousand dollars nor more than twenty thousand dollars for each offense; and it shall be unlawful for any person, persons, or corporation to offer, grant, or give, or to solicit, accept or receive any rebate, concession or discrimination in respect to the transportation of any property in interstate or foreign commerce by any common carrier subject to said Act to regulate commerce and the Acts amendatory thereof whereby any such property shall by any device whatever be transported at a less rate than that named in the tariffs published and filed by such carrier as is required by said Act to regulate commerce and the Acts amendatory thereof, or whereby any other advantage is given or discrimination is practiced. Every person or corporation, whether carrier or shipper, who shall knowingly and willfully offer, grant, or give, or solicit, accept, or receive any such rebates, concession, or discrimination shall be deemed guilty of a misdemeanor, and on conviction thereof shall be punished by a fine of not less than one thousand dollars nor more than twenty thousand dollars: Provided, That any person, or any officer or director of any corporation subject to the provisions of this Act, or the Act to regulate commerce and the Acts amendatory thereof, or any receiver, trustee, lessee, agent, or person acting for or employed by any such corporation, who shall be convicted as aforesaid, shall, in addition to the fine herein provided for, be liable to imprisonment in the penitentiary for a term of not exceeding two years, or both such fine and imprisonment, in the discretion of the court. Every violation of this section shall be prosecuted in any court of the United States having jurisdiction of crimes within the district in which such violation was committed, or through which the transportation may have been conducted; and whenever the offense is begun in one jurisdiction and completed in another it may be dealt with, inquired of, tried, determined, and punished in either jurisdiction in the same manner as if the offense had been actually and wholly committed therein.

"In construing and enforcing the provisions of this section, the act, omission, or failure of any officer, agent, or other person acting for or employed by any common carrier or shipper, acting within the scope of his employment, shall in every case be also deemed to be the act, omission, or failure of such carrier or shipper, as well as that of the person. Whenever any carrier files with the Interstate Commerce Commission or publishes a particular rate under the provisions of the Act to regulate commerce or Acts amendatory thereof, or participates in any rates so filed or published, that rate as against such carrier, its officers or agents, in any prosecution begun under this Act shall be conclusively deemed to be the legal rate, and any departure from such rate, or any offer to depart therefrom, shall be deemed to be an offense under this section of this Act."

PENALTY FOR REBATES TO CORPORATIONS.

"Any person, corporation, or company who shall deliver property for interstate transportation to any common carrier, subject to the provisions of this Act, or for whom, as consignor or consignee, any such carrier shall transport property from one state, territory or district of the United States to any other state, territory or district of the United States or foreign country who shall knowingly and willfully, by employee, agent, officer, or otherwise, directly or indirectly, by or through any means or device whatsoever, receive or accept from such common carrier any sum of money, or any other valuable consideration, as a rebate or offset against the regular charges for transportation of such property, as fixed by the schedules of rates provided for in this Act shall, in addition to any penalty provided by this Act, forfeit to the United States a sum of money three times the amount of money so received or accepted and three times the value of any other consideration so received or accepted, to be ascertained by the trial court, and the Attorney-General of the United States is authorized and directed whenever he has reasonable grounds to believe that any such person, corporation, or company has knowingly or willfully received or accepted from any such common carrier any sum of money or other valuable consideration as a rebate or offset as aforesaid, to institute in any court of the United States of competent jurisdiction a civil action to collect the said sum or sums so forfeited as aforesaid; and in the trial of said action all such rebates or other considerations so received or accepted for a period of six years prior to the commencement of the action may be included therein, and the amount recovered shall be three times the total amount of money or three times the total value of such consideration so received or accepted, or both, as the case may be. Provided, That the foregoing penalties shall not apply to rebates or considerations received prior to the passage and approval of this Act."

Sec. 3. That section fourteen of said Act as amended March second, eighteen hundred and eighty-nine, be amended so as to read as follows:

"Sec. 14. That whenever an investigation shall be made by said commission, it shall be its duty to make a report in writing in respect thereto, which shall state the conclusions of the commission, together with its decision, order, or requirement in the premises; and in case damages are awarded such report shall include the findings of fact on which the award is made.

"All reports of investigations made by the commission shall be entered of record, and a copy thereof shall be furnished to the party who may have complained, and to any common carrier that may have been complained of.

"The commission may provide for the publication of its reports and decisions in such form and manner as may be best adapted for public information and use, and such authorized publications shall be competent evidence of the reports and decisions of the commission therein contained in all courts of the United States and of the several states without any further proof or authentication thereof. The commission may also cause to be printed for early distribution its annual reports."

Sec. 4. That section fifteen of said Act be amended so as to read as follows:

"Sec. 15. That the commission is authorized and empowered, and it shall be its duty whenever, after full hearing upon a complaint made as provided in section thirteen of this Act, or upon complaint of any common carrier, it shall be of the opinion that any of the rates, or charges whatsoever, demanded, charged, or collected by any common carrier or carriers, subject to the provisions of this Act, for the transportation of persons or property as defined in the first section of this Act, or that any regulations or practices whatsoever of such carrier or carriers affecting such rates, are unjust or unreasonable, or unjustly discriminatory, or unduly preferential or prejudicial, or otherwise in violation of any of the provisions of this Act, to determine and prescribe what will be the just and reasonable rate or rates, charge or charges, to be thereafter observed in such case as the maximum to be charged; and what regulation or practice in respect to such transportation is just, fair, and reasonable to be thereafter followed; and to make an order that the carrier shall cease and desist from such violation, to the extent to which the commission find the same to exist, and shall not thereafter publish, demand, or collect any rate or charge for such transportation in excess of the maximum rate or charge so prescribed, and shall conform to the regulation or practice so prescribed. All orders of the commission, except orders for the payment of money, shall take effect within such reasonable time, not less than thirty days, and shall continue in force for such period of time, not exceeding two years, as shall be prescribed in the order of the commission, unless the same shall be suspended or modified or set aside by the commission or be suspended or set aside by a court of competent jurisdiction. Whenever the carrier or carriers, in obedience to such order of the commission or otherwise, in respect to joint rates, fares, or charges, shall fail to agree among themselves upon the apportionment or division thereof, the commission may after hearing make a supplemental order prescribing the just and reasonable proportion of such joint rate to be received by each carrier party thereto, which order shall take effect as a part of the original order.

INTERSTATE COMMISSION MAY ESTABLISH MAXIMUM JOINT RATES.

"The commission may also, after hearing on a complaint, establish through routes and joint rates as the maximum to be charged and prescribe the division of such rates as hereinbefore provided, and the terms and conditions under which such through routes shall be operated, when that may be necessary to give effect to any provision of this Act, and the carriers complained of have refused or neglected to voluntarily establish such through routes and joint rates, provided no reasonable or satisfactory through route exists, and this provision shall apply when one of the connecting carriers is a water line.

"If the owner of property transported under this Act directly or indirectly renders any service connected with such transportation, or furnishes any instrumentality used therein, the charge and allowance therefor shall be no more than is just and reasonable, and the commission may, after hearing on a complaint, determine what is a reasonable charge as the maximum to be paid by the carrier or carriers for the service so rendered or for the use of the instrumentality so furnished, and fix the same by appropriate order, which order shall have the same force and effect and be enforced in like manner as the orders above provided for in this section.

"The foregoing enumeration of powers shall not exclude any power which the commission would otherwise have in the making of an order under the provisions of this Act."

Sec. 5. That section sixteen of said Act as amended March second, eighteen hundred and eighty-nine, be amended so as to read as follows:

"Sec. 16. That if, after hearing on a complaint made as provided in section thirteen of this Act, the commission shall determine that any party complainant is entitled to an award of damages under the provisions of this Act for a violation thereof, the commission shall make an order directing the carrier to pay to the complainant the sum to which he is entitled on or before a day named.

"If a carrier does not comply with an order for the payment of money within the time limit in such order, the complainant, or any person for whose benefit such order was made, may file in the circuit court of the United States for the district in which he resides or in which is located the principal operating office of the carrier, or through which the road of the carrier runs, a petition setting forth briefly the causes for which he claims damages, and the order of the commission in the premises. Such suit shall proceed in all respects like other civil suits for damages, except that on the trial of such suit the findings and order of the commission shall be prima facie evidence of the facts therein stated, and except that the petitioner shall not be liable for costs in the circuit court nor for costs at any subsequent stage of the proceedings unless they accrue upon his appeal. If the petitioner shall finally prevail he shall be allowed a reasonable attorney's fee, to be taxed and collected as a part of the costs of the suit. All complaints for recovery of damages shall be filed with the commission within two years from the time the cause of action accrues, and not after, and a petition for the enforcement of an order for the payment of money shall be filed in the circuit court within one year from the date of the order, and not after: Provided, That accrued claims may be presented within one year.

"In such suits all parties in whose favor the commission may have made an award for damages by a single order may be joined as plaintiffs, and all of the carriers parties to such an order awarding such damages may be joined as defendants, and such suit may be maintained by such joint plaintiffs and against such joint defendants in any district where any one of such joint plaintiffs could maintain such suit against any one of such joint defendants; and service of process against any one of such defendants as may not be found in the district where the suit is brought may be made in any district where such defendant carrier has its principal operating office. In case of such joint suit the recovery, if any, may be by judgment in favor of any one of such plaintiffs, against the defendant found to be liable to such plaintiff.

HOW ORDERS OF THE COMMISSION MAY BE SERVED.

"Every order of the commission shall be forthwith served by mailing to any one of the principal officers or agents of the carrier at his usual place of business a copy thereof; and the registry mail receipt shall be prima facie evidence of the receipt of such order by the carrier in due course of mail.

"The Commission shall be authorized to suspend or modify its orders upon such notice and in such manner as it shall deem proper.

"It shall be the duty of every common carrier, its agents and employees, to observe and comply with such orders so long as the same shall remain in effect.

"Any carrier, any officer, representative, or agent of a carrier, or any receiver, trustee, lessee, or agent of either of them, who knowingly fails or neglects to obey any order made under the provisions of section fifteen of this Act, shall forfeit to the United States the sum of five thousand dollars for each offense. Every distinct violation shall be a separate offense, and in case of a continuing violation each day shall be deemed a separate offense.

"The forfeiture provided for in this Act shall be payable into the Treasury of the United States, and shall be recoverable in a civil suit in the name of the United States, brought in the district where the carrier has its principal operating office, or in any district through which the road of the carrier runs.

"It shall be the duty of the various district attorneys, under the direction of the attorney-general of the United States, to prosecute for the recovery of forfeitures. The costs and expenses of such prosecution shall be paid out of the appropriation for the expenses of the courts of the United States. The commission may, with the consent of the attorney-general employ special counsel in any proceeding under this Act, paying the expenses of such employment out of its own appropriation.

FAILURE TO OBEY ORDER OF COMMISSION.

"If any carrier fails or neglects to obey any order of the commission, other than for the payment of money, while the same is in effect, any party injured thereby, or the commission in its own name, may apply to the circuit court in the district where such carrier has its principal operating office, or in which the violation or disobedience of such order shall happen, for an enforcement of such order. Such application shall be by petition, which shall state the substance of the order and the respect in which the carrier has failed of obedience, and shall be served upon the carrier in such manner as the court may direct, and the court shall prosecute such inquiries and make such investigations, through such means as it shall deem needful in the ascertainment of the facts at issue or which may arise upon the hearing of such petition. If, upon such hearing as the court may determine to be necessary, it appears that the order was lawfully made and duly served, and that the carrier is in disobedience of the same, the court shall enforce obedience to such order by a writ of injunction, or other proper process, mandatory or otherwise, to restrain such carrier, its officers, agents, or representatives, from further disobedience of such order, or to enjoin upon it, or them, obedience to the same; and in the enforcement of such process the court shall have those powers ordinarily exercised by it in compelling obedience to its writs of injunction and mandamus.

"From any action upon such petition an appeal shall lie by either party to the Supreme Court of the United States, and in such court the case shall have priority in hearing and determination over all other causes except criminal causes, but such appeal shall not vacate or suspend the order appealed from.

"The venue of suits brought in any of the circuit courts of the United States against the commission to enjoin, set aside, annul, or suspend any order or requirement of the commission shall be in the district where the

carrier against whom such order or requirement may have been made has its principal operating office, and may be brought at any time after such order is promulgated. And if the order or requirement has been made against two or more carriers then in the district where any one of said carriers has its principal operating office, and if the carrier has its principal operating office in the District of Columbia, then the venue shall be in the district where said carrier has its principal office, and the jurisdiction to hear and determine such suits is hereby vested in such courts. The provisions of 'An act to expedite the hearing and determination of suits in equity, and so forth,' approved February eleventh, nineteen hundred and three, shall be, and are hereby, made applicable to all such suits, including the hearing on an application for a preliminary injunction, and are also made applicable to any proceeding in equity to enforce any order or requirement of the commission, or any of the provisions of the Act to regulate commerce approved February fourth, eighteen hundred and eighty-seven, and all Acts amendatory thereof or supplemental thereto. It shall be the duty of the attorney-general in every such case to file the certificate provided for in said expediting Act of February eleventh, nineteen hundred and three, as necessary to the application of the provisions thereof, and upon appeal as therein authorized to the Supreme Court of the United States, the case shall have in such court priority in hearing and determination over all other causes except criminal causes: Provided, That no injunction, interlocutory order or decree suspending or restraining the enforcement of an order of the commission shall be granted except on hearing after not less than five days' notice to the commission. An appeal may be taken from any interlocutory order or decree granting or continuing an injunction in any suit, but shall lie only to the Supreme Court of the United States: Provided, further, That the appeal must be taken within thirty days from the entry of such order or decree and it shall take precedence in the appellate court over all other causes, except causes of like character and criminal causes.

COPIES OF SCHEDULES TO BE PRESERVED AS PUBLIC RECORDS.

"The copies of schedules and tariffs of rates, fares and charges, and of all contracts, agreements, or arrangements between common carriers filed with the commission as herein provided, and the statistics, tables and figures contained in the annual reports of carriers made to the commission as required by the provisions of this Act, shall be preserved as public records in the custody of the secretary of the commission, and shall be received as prima facie evidence of what they purport to be for the purpose of investigations by the commission and in all judicial proceedings; and copies of or extracts from any of said schedules, tariffs, contracts, agreements, arrangements, or reports made public records as aforesaid, certified by the secretary under its seal, shall be received in evidence with like effect as the originals."

Sec. 6. That a new section be added to said act immediately after section sixteen, to be numbered as section sixteen a, as follows:

"Section 16a. That after a decision, order, or requirement has been made by the commission in any proceeding any party thereto may at any time make application for rehearing of the same, or any matter determined therein, and it shall be lawful for the commission in its discretion to grant such a rehearing if sufficient reason therefor be made to appear. Applications for rehearing shall be governed by such general rules as the commission may establish. No such application shall excuse any carrier from complying with or obeying any decision, order, or requirement of the commission, or operate in any manner to stay or postpone the enforcement thereof, without the special order of the commission. In case a rehearing is granted the proceedings thereupon shall conform as nearly as may be to the proceedings in an original hearing, except as the commission may otherwise direct; and if, in its judgment, after such rehearing and the consideration of all facts, including those arising since the former hearing, it shall appear that the original decision, order, or requirement is in any respect unjust or unwarranted, the commission may reverse, change, or modify the same accordingly. Any decision, order, or requirement made after such rehearing reversing, changing or modifying the original determination shall be subject to the same provisions as an original order."

"Section 16b. Nothing in this Act shall prevent any common carrier subject to its provisions from giving free transportation or reduced rates to the officers of the organizations of such employees for the purpose of transacting the business of such organizations with such railroads: Provided, That such reduced rates or free transportation are not issued with the view of discriminating in favor of or against any particular class of employees."

Sec. 7. That section twenty of said Act be amended so as to read as follows:

Sec. 20. That the commission is hereby authorized to require annual reports from all common carriers subject to the provisions of this Act, and from the owners of all railroads engaged in interstate commerce as defined in this Act, to prescribe the manner in which such reports shall be made, and to require from such carriers specific answers to all questions upon which the commission may need information. Such annual reports shall show in detail the amount of capital stock issued, the amounts paid therefor, and the manner of payment for the same; the dividends paid, the surplus fund, if any, and the number of stockholders; the funded and floating debts and the interest paid thereon; the cost and value of the carrier's property, franchises, and equipments; the number of employees and the salaries paid each class; the accidents to passengers, employees, and other persons, and the causes thereof; the amounts expended for improvements each year, how expended, and the character of such improvements; the earnings and receipts from each branch of business and from all sources; the operating and other expenses; the balances of profit and loss; and a complete exhibit of the financial operations of the carrier each year, including an annual balance sheet. Such reports shall also contain such information in relation to rates or regulations concerning fares or freights, or agreements, arrangements, or contracts affecting the same as the commission may require; and the commission may, in its discretion, for the purpose of enabling it the better to carry out the purposes of this Act, prescribe a period of time within which all common carriers subject to the provisions of this Act shall have, as near as may be, a uniform system of accounts, and the manner in which such accounts shall be kept.

"Said detailed reports shall contain all the required statistics for the period of twelve months ending on the thirtieth day of June in each year, and shall be made out under oath and filed with the commission, at its office in Washington, on or before the thirtieth day of September then next following, unless additional time be granted in any case by the commission; and if any carrier, person, or corporation subject to the provisions of this Act shall fail to make and file said annual reports within the time above specified, or within the time extended by the commission for making and filing the same, or shall fail to make specific answer to any question authorized by the provisions of this section within thirty days from the time it is lawfully required so to do, such parties shall forfeit to the United States the sum of one hundred dollars for each and every day it shall to continue to be in default with respect thereto. The commission shall also have authority to require said carriers to file monthly reports of earnings and expenses or special reports within a specified period, and if any such carrier shall fail to file such reports within the time fixed by the commission it shall be subject to the forfeitures last above provided.

"Said forfeitures shall be recovered in the manner provided for the recovery of forfeitures under the provisions of this Act.

"The oath required by this section may be taken before any person authorized to administer an oath by the laws of the state in which the same is taken.

COMMISSION MAY PRESCRIBE FORMS OF ACCOUNTS.

"The commission may, in its discretion, prescribe the forms of any and all accounts, records, and memoranda to be kept by carriers subject to the provisions of this Act, including the accounts, records, and memoranda of the movement of traffic as well as the receipts and expenditures of moneys. The commission shall at all times have access to all accounts, records, and memoranda kept by carriers subject to this Act, and it shall be unlawful for such carriers to keep any other accounts, records, or memoranda than those prescribed or approved by the commission, and it may employ special agents or examiners, who shall have authority under the order of the commission to inspect and examine any and all accounts, records, and memoranda kept by such carriers. This provision shall apply to receivers of carriers and operating trustees.

"In case of failure or refusal on the part of any such carrier, receiver, or trustee to keep such accounts, records, and memoranda on the books and in the manner prescribed by the commission, or to submit such accounts, records, and memoranda as are kept to the inspection of the commission or any of its authorized agents or examiners, such carrier, receiver, or trustee shall forfeit to the United States the sum of five hundred dollars for each such offense, and for each and every day of the continuance of such offense, such forfeitures to be recoverable in the same manner as other forfeitures provided for in this Act.

"Any person who shall willfully make any false entry in the accounts of any book of accounts or in any record or memoranda kept by a carrier, or who shall willfully destroy, mutilate, alter, or by any other means or device falsify the record of any such account, record, or memoranda, or who shall willfully neglect or fail to make full, true, and correct entries in such accounts, records, or memoranda of all facts and transactions appertaining to the carrier's business, or shall keep any other accounts, records, or memoranda than those prescribed or approved by the commission, shall be deemed guilty of a misdemeanor and shall be subject, upon conviction in any court of the United States of competent jurisdiction, to a fine of not less than one thousand dollars nor more than five thousand dollars, or imprisonment for a term not less than one year nor more than three years, or both such fine and imprisonment.

"Any examiner who divulges any fact or information which may come to his knowledge during the course of such examination, except in so far as he may be directed by the commission or by a court or judge thereof, shall be subject, upon conviction in any court of the United States of competent jurisdiction to a fine of not more than five thousand dollars or imprisonment for a term not exceeding two years, or both.

"That the circuit and district courts of the United States shall have jurisdiction, upon the application of the attorney-general of the United States at the request of the commission, alleging a failure to comply with or a violation of any of the provisions of said Act to regulate commerce or of any Act supplementary thereto, or amendatory thereof by any common carrier, to issue a writ or writs of mandamus commanding such common carrier to comply with the provisions of said Acts, or any of them.

"And to carry out and give effect to the provisions of said Acts, or any of them, the commission is hereby authorized to employ special agents or examiners who shall have power to administer oaths, examine witnesses, and receive evidence.

"That any common carrier, railroad, or transportation company receiving property for transportation from a point in one state to a point in another state shall issue a receipt or bill of lading therefor and shall be liable to the holder thereof for any loss, damage, or injury to such property caused by it or by any common carrier, railroad, or transportation company to which such property may be delivered or over whose line or lines such property may pass, and no contract, receipt, rule, or regulation shall exempt such common carrier, railroad, or transportation company from the liability herein imposed: Provided, That nothing in this section shall deprive any holder of such receipt or bill of lading of any remedy or right of action which he has under existing law.

"That the common carrier, railroad, or transportation company issuing such receipt or bill of lading shall be entitled to recover from the common carrier, railroad, or transportation company through whose negligence the loss, damage, or injury shall have been sustained, the amount of such loss, damage, or injury as it may be required to pay to the owners of such property."

Sec. 8. That all existing laws relating to the attendance of witnesses and the production of evidence and the compelling of testimony under the Act to regulate commerce, and all Acts amendatory thereof shall apply to any and all proceedings and hearings under this Act.

Sec. 9. That all laws and parts of laws in conflict with the provisions of this Act are hereby repealed, but the amendments herein provided for shall not affect causes now pending in courts of the United States, but such causes shall be prosecuted to a conclusion in the manner heretofore provided by law.

Sec. 10. That this Act shall take effect and be in force from and after its passage.

GENERAL NEWS SECTION

NOTES.

The Pennsylvania Railroad has abolished seven passenger and freight stations on the West Penn division, and, in connection with the announcement, it is said that within the past year in the vicinity of Pittsburg 25 stations altogether have been abolished, largely on account of the increased facilities offered by competing electric lines. It is said, however, that most of the stations abolished were flag stations, which would seem to contradict the other statement that they were freight as well as passenger stations.

The claim of the Michigan Central that to get its share of through passenger business it should charge a lower fare than the Lake Shore & Michigan Southern, has been settled, it is said, and the Erie and the Grand Trunk, threatening to maintain low rates to keep below those of the Michigan Central are for the time being appeased. The settlement is reported to be as follows: Rates to be restored to tariff June 1; the Michigan Central's differential to be used only as a basing rate for business originating west of Chicago, and not to apply from Chicago to New York and Boston; any road thinking it has cause for dissatisfaction, or that it has a just grievance on the question of standard and differential fares to appeal to Lucius Tuttle, president of the Boston & Maine, who, in the capacity of a referee, shall hear, try and determine the case.

The State Railroad Commission of Texas has refused to permit the Texas & New Orleans to make an increase of 20 per cent. in the freight rates on its line from Sabine to Dallas, 318 miles long; although, according to the application presented by the road, this line has been operated at a loss for more than two years. The General Manager of the road estimates that the total increase in income by the proposed advance would be only $32,161, basing the estimate on the business of last year, and the total deficit on the division for the year ending June 30 last was $180,787. The deficit is progressively increasing, and the lumber traffic, which the road has depended on, is rapidly falling off, so that, on the whole, it would seem that the commissioners are in this case exceptionally hard-hearted. The present rates, which are declared to be barely above the actual cost of transportation, were put in effect to relieve a depressed lumber market, and it is declared that the conditions in the lumber market no longer warrant their continuance.

Sinking of Ferryboat Baltimore.

On the evening of May 16, the ferryboat "Baltimore," of the Pennsylvania Railroad, was sunk at the company's slip at Desbrosses street, New York city, as a result of a hole stove in her side by a heavy steam lighter, which struck the "Baltimore" when she was approaching the slip and within about 150 feet of it. The passengers were safely landed on the dock, though not without the aid of a tug; and when the tug started to tow the "Baltimore" into another slip it was found impossible to do so, and the ferryboat sank within about five minutes.

Pennsylvania's Enormous Passenger Traffic.

With the new time-table of May 27 the Pennsylvania Railroad will put on four additional two-hour trains between Philadelphia and New York, to leave Broad Street Station weekdays at 7 a.m. and 8 a.m., and to leave New York at 12 noon and 2 p.m. An additional two-hour train from New York to Philadelphia will be run Sundays. A fast daylight express will be put on in each direction between New York and Pittsburg, leaving New York at 9.55 a.m., arriving at Pittsburg at 7 p.m.; leaving Pittsburg at 10 a.m., arriving at New York at 7 p.m.* This increase in facilities is made because of the unprecedented increase during the present year in passenger traffic, the months of January, February and March showing an increase over the corresponding months of 1905 of over 12 per cent. For the first quarter of 1906 the travel on the Pennsylvania has been just double that of the first quarter ten years ago.

In 1896 there were seven through trains from Philadelphia to Pittsburg. In 1901 two had been added. Now there will be 14 through trains from Philadelphia to Pittsburg, and the running time of the fastest has been reduced from 8 hours and 55 minutes in 1896 to 7 hours and 3 minutes in 1906 (nine hours between Pittsburg and New York.)

In 1896 there were 29 trains every weekday from Philadelphia to New York, only one of which made the run in two hours. In 1901 the service had been increased to 31 trains, five of which made the run in two hours. Now there will be 41 trains from Philadelphia to New York, 13 of which will make the run in two hours. From 7 a.m. until 10 a.m. there will be five two-hour trains and one train making the run in two hours and 13 minutes. This practically provides a two-hour train every half hour during the busy morning hours.

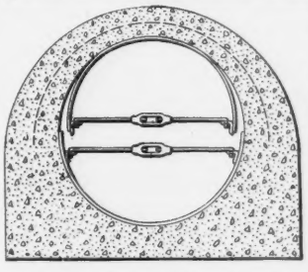
In 1896 the present "Chicago Special" was a fast mail train to which one sleeping car was attached in that year. Soon the train was divided into two sections, one for mail and one for passengers; now parlor cars and coaches will be attached to the mail section. In 1898 a fast night train, leaving Pittsburg at 10 p.m. and arriving New York at 8 a.m., was placed in service. This train has proved so popular that in place of the one train, four heavy trains are now running every night on practically the same schedule.

In 1905 the first 18-hour train between New York and Chicago, the "Pennsylvania Special," was established, and has been a pronounced success. Its exceptionally fast schedule has been maintained with phenomenal regularity.—*Philadelphia Press. Condensed.*

*These New York-Pittsburg runs are only 20 minutes slower than the 18-hour Chicago trains; or about 50 miles an hour west of the Hudson River.

Blaw Collapsible Steel Centering.

The accompanying drawing shows the application of a new system of collapsible steel centering for concrete culverts, drains or sewers which does away entirely with wood centering and which is practically indestructible. It is made in short sections, of steel plate bent to any form of cross-section desired, round, elliptic or egg-shaped. The centering is built in two parts, top and bottom, which have lap joints fastened with wedges and hasps. Each part is sprung outward to shape by spreaders forced apart with a turn buckle in the center. To prepare the centers for concreting the lower half is leveled upon blocking the trench, the upper half is put on and the joint wedges driven home. The turn buckles are then turned to force the centering out to its true cross-section. The exterior surface is perfectly smooth and gives a good finish to the inside of the culvert. After the concrete has set the wedges are driven out, the turn buckles loosened and the centering removed in sections. It is claimed that by this method culverts and sewers can be built quicker and cheaper than with wood centers, and the steel centering has the additional advantages that it is practically indestructible with ordinary care, can be easily and quickly moved from place to place and can be put up and taken down by unskilled laborers. It is made by the Blaw Collapsible Steel Centering Co., Pittsburg, Pa.



Blaw Collapsible Steel Centering.

TRADE CATALOGUES.

Portable Electric Hoists.—The Yale & Towne Mfg. Co., New York, has issued an attractive small catalogue describing a line of portable electric hoists which it has recently begun to make. These hoists are intended to take the place of hand hoists wherever power is available for operating them. They are made in sizes of from one to six tons capacity and using either wire ropes or chains. They are light and compact and simple to operate. The special features include single point suspension on a swiveling ball-bearing hook which permits making a dragging lift at a 45-deg. angle; steel suspension, the entire tensile strain being carried by wrought metal parts; turntable collector rings on the hook which permit the hoist to swivel freely without fouling the feed wires. Special trolleys for hand, chain wheel or electric motor propulsion are also illustrated.

Diaphragms, Curtain Rollers, Etc.—An attractive little pamphlet of the Acme Supply Co., Chicago, illustrates and describes several of the specialties of this company. These include the "Acme" diaphragm, Pullman and Gould types, the "Acme" diaphragm attachment, "Acme" vestibule curtain roller, and "Acme" metallic dust-proof weatherstrip. Several of the illustrations are in colors, adding much to the general good appearance of the book.

Bolt Cutters.—Bulletin No. 20 of the National Machinery Co., Tiffin, Ohio, is devoted to "National" multiple-spindle bolt cutters. It is 8⅝ x 10¾, and its 24 pages contain half-tone views of the different styles of machines, with information relative to the details of construction, operation, advantages, etc. Tables of dimensions are given also.

Ideal Power.—The May number of this little magazine of the Chicago Pneumatic Tool Co., devoted to compressed air and electrical appliances, contains 20 pages of reading matter. There are numerouus short articles in the field to which the magazine is devoted, and there are included two half-tone interior views of The

Pneumatic Tool Company's plant at St. Petersburg, Russia, a subsidiary company of the Chicago Pneumatic; also two views of the plant of the Francis Smith Co., of San Francisco, destroyed in the recent fire.

Lock-Nut and Washer.—The Capitol Lock-Nut & Washer Co., Columbus, Ohio, issues a little 10-page pamphlet describing the Gaines automatic lock-nut. Tables of sizes and prices are included.

Panel-Back Chairs.—A folder of the Richards Chair-Panel Co., Chicago, shows the Richards Filipino fibre-rush chairs—a summer chair provided with the fit-the-back panel of this company.

Manufacturing and Business.

The Sullivan Machinery Co. has appointed Randolph D. Talmage local manager at Joplin, Mo., succeeding S. A. Allison.

The General Superintendent of Motive Power of the Southern Pacific, Oakland, Cal., requests manufacturers to send him catalogues on mechanical matters, to replenish the files destroyed in the San Francisco fire.

H. C. Baker, formerly in charge of the Atlanta office territory of Crocker-Wheeler Company, has started for San Francisco, where he will take charge of the Pacific Coast territory of the Crocker-Wheeler Company.

The Northwestern Car & Locomotive Co., Chicago, has bought the old Chicago Car & Locomotive works at Hegewisch, Ill. It will rebuild and repair all classes of cars and locomotives and will make car forgings. The city office is 542 Monadnock Building.

The American Axle Works has engaged Dodge & Day, engineers, of Philadelphia, to investigate the condition of its plant and report on just what changes should be made to its present layout and what additional building should be undertaken to enable it to increase its capacity about 50 per cent.

During the Master Car Builders' and Master Mechanics' Conventions at Atlantic City, the Niles-Bement-Pond Company will have on exhibition and in full operation one of its extra heavy 90-in. driving wheel chucking lathes. Owing to its great weight, this machine cannot be shown on the Steel Pier. Therefore a special booth has been built, two minutes' walk south from Pennsylvania Station on New York avenue, near Atlantic avenue, where all those who are interested are cordially invited to witness a demonstration of the machine.

Iron and Steel.

The Illinois Central has given a contract for 40,000 tons of rails to be delivered in 1907. It is said that the rails ordered for 1907 delivery aggregate 562,000 tons, including orders given by the Great Northern, Northern Pacific, St. Paul, Illinois Central and Wisconsin Central. The Florida East Coast has given an order for 9,000 tons for this year's delivery, and the Tidewater an order for 27,000 tons for 1907 delivery. The Chicago, Milwaukee & St. Paul order is for 130,000 tons for 1907, and the Chicago, St. Paul, Minneapolis & Omaha's for 10,000 tons.

OBITUARY NOTICES.

W. H. Lewis, Treasurer of the Chicago, Indianapolis & Louisville, died at Chicago, Ill., on May 11. He was 70 years old. Mr. Lewis was elected Treasurer of the Louisville, New Albany & Chicago, which is now the C. I. & L., in 1858, and had held that office ever since through the various changes in the organization of that property.

MEETINGS AND ANNOUNCEMENTS.

(For dates of conventions and regular meetings of railroad conventions and engineering societies, see advertising page 24.)

New York Electrical Society.

At the meeting of this society May 23, Max E. Schmidt lectured on the Moving platform railway in city transportation, and F. B. Behr spoke on his Mono-rail.

Master Car Builders' and Master Mechanics' Conventions.

Rates at a fare and a third for round trip have been secured from the railroad passenger associations. Tickets to Atlantic City (one way) must be bought not earlier than June 9 nor later than June 15. Take from the agent a certificate and surrender it at headquarters on the steel pier at Atlantic City not later than June 20. Both the Pennsylvania and the Baltimore & Ohio will run special trains from Chicago to the conventions.

Western Railway Club.

At the annual election of officers held at the close of the regular May meeting, H. T. Bentley (C. & N.-W.) was elected President; C. A. Seley (Rock Island), First Vice-President; M. K. Barnum (C., B. & Q.), Second Vice-President; P. H. Peck (C. & W. I.), Treasurer (re-elected); J. W. Taylor, Secretary (re-elected). The Executive Committee is C. B. Young, W. E. Sharp and G. H. Bryant. The Library Trustees are C. A. Seley, Chairman; W. F. M. Goss and F. W. Sargent.

New York Traffic Club.

The railroad freight and passenger agents and shippers' traffic agents, of New York city, who have held large and enthusiastic annual dinners for several years, have formed a permanent organization, called the New York Traffic Club, and it is expected that henceforth the organization may have not only a social value but an influence in a business way. The President of the club is B. D. Caldwell (D., L. & W.); Vice-Presidents, George T. Smith (P. R. R.), E. W. Donnalley (Diamond Match Co.), C. F. Daly (N. Y. C.), H. L. Joyce (Interstate Lighterage Co.), and R. Ten Broeck (U. P.). The Treasurer is E. G. Warfield (Mallory Lines); Recording Secretary, C. A. Swope (L. & N.), and Corresponding Secretary, C. H. Tiffany (West Virginia Pulp & Paper Co.).

American Society of Civil Engineers.

The thirty-eighth annual convention of this society will be held at the Frontenac at the Thousand Islands, Frontenac, N. Y., June 26-29. Hotel rates will be from $4 to $4.50 a day, and railroad fares will be at the rate of a fare and one-third on the certificate plan. Tickets should be bought more than three days before the time of meeting, and return tickets not later than three days after the date of adjournment. The New York Central is to run a special train, leaving Grand Central Station, New York, at 9.30 a.m., June 25. At the meeting on June 27, the following subjects will be discussed: What is the Best Preparatory Education for the Civil Engineering Profession? Is Technical Training the Best Education for Executive Work? Prof. George F. Swain, of Boston, will open the discussion on these subjects. Protection of the Intellectual Property of Civil Engineers will be discussed by D. A. Usina. On the evening of June 28 the following subjects will be discussed: Sewage disposal; discussion opened by George C. Whipple; Best means for the prevention of conflagration in large cities, opened by John R. Freeman; and Filtration of water.

ELECTIONS AND APPOINTMENTS.

Executive, Financial and Legal Officers.

Cripple Creek Central.—M. Rollins, A. H. Day and C. E. Goldman have resigned from the Board of Directors. C. M. MacNeill and C. C. Hamlin, Vice-President and Counsel respectively for the United States Reduction & Refining Co., have been elected Directors, leaving one vacancy to be filled later.

Montana.—M. S. Gunn has been elected President, succeeding R. A. Harlow.

New York Central Lines.—W. C. Brown, Vice-President in charge of operation, was, on May 18, elected Senior Vice-President of the New York Central Lines. He will "perform such duties in the general management of the property and the business of the company as may be assigned to him by the Board of Directors, the Executive Committee, or the President." His offices will be in New York, instead of Chicago as heretofore. Mr. Brown was born in 1853 and began railroad service as a section laborer on the Chicago, Milwaukee & St. Paul in 1869. After serving as train despatcher on the Illinois Central, and later on the Chicago, Rock Island & Pacific, he went to the Chicago, Burlington & Quincy in 1876, on which road and its affiliated lines he remained until 1901, acting as Chief Despatcher, Trainmaster, Assistant Superintendent, General Manager of several subsidiary roads, and finally General Manager of the C., B. & Q. He then went to the Lake Shore & Michigan Southern as Vice-President and General Manager. In February, 1902, he was elected Vice-President of the New York Central & Hudson River, and since February, 1905, he has been Vice-President of all the New York Central Lines. President Newman expects to be abroad for some two months, and Mr. Brown, will, in his absence, be the ranking executive official. In printing this sketch of Mr. Brown's life,

W. C. Brown.

we should add that he has just been elected President of the American Railway Association.

New York, New Haven & Hartford.—James F. Hemingway has been elected a Director, succeeding A. D. Osborne, resigned.

Tombigbee Valley.—The office of the President has been moved from Aliceville, Ala., to Mobile.

Operating Officers.

Alabama Great Southern.—See Cincinnati, New Orleans & Texas Pacific.

Argentine Central.—The office of the General Manager has been removed from Denver, Colo., to Silverplume.

Astoria & Columbia River.—See Corvallis & Eastern.

Cincinnati, New Orleans & Texas Pacific.—J. H. Nelson, Superintendent of the Chattanooga Belt, has been appointed also Superintendent of Terminals at Chattanooga for the C., N. O. & T. P. and the Alabama Great Southern.

Cleveland, Cincinnati, Chicago & St. Louis.—J. Q. Van Winkle, General Superintendent, has been appointed Assistant General Manager. H. F. Houghton, Assistant General Superintendent, succeeds Mr. Van Winkle. Mr. Van Winkle was born in 1851 and began railroad service in 1861 as a messenger on the Indianapolis, Pittsburg & Cleveland, which is now a part of the Big Four. After being clerk and station agent, he was, in 1873, appointed Chief Clerk in the Superintendent's office. He was later agent at Union City, Ind., then general yardmaster at Indianapolis, and later agent at Mattoon, Ill. In 1881 he was made trainmaster at Indianapolis, and the next year appointed agent at East St. Louis, Ill. Two years later he was made Agent and Division Freight Agent at Indianapolis, and in 1888 Superintendent. In 1892 he was appointed General Superintendent of the Terminal Railroad Association of St. Louis, but in 1893 returned to the C., C., C. & St. L. as General Superintendent.

Mr. Houghton was born in Vermont in 1859 and began railroad work in 1872 in a section gang on the Atlantic & Great Western. The next year he was a telegraph operator, and in 1874 went to the Wabash as an operator. He remained on this road until 1886, serving as Train Despatcher, Clerk to the Superintendent and Chief Despatcher. He then went to the Baltimore & Ohio as Despatcher and later Chief Despatcher. In 1887 he was appointed Chief Despatcher and Trainmaster on the Wabash. He left in 1893 and went to the Big Four as Assistant Superintendent of the Chicago division; he was appointed Superintendent of that division in 1898, and promoted to be Assistant General Superintendent in 1902.

Corvallis & Eastern.—G. W. Talbot has been appointed General Manager, with office at Astoria, Ore., succeeding T. H. Curtis, resigned.

St. Louis, Iron Mountain & Southern.—H. G. Clark has been appointed Superintendent of the White River division, with office at Aurora, Mo., succeeding Hugh Wilson, resigned.

Seaboard Air Line.—Walter Hale, Superintendent of the Fourth division, with office at Jacksonville, Fla., has resigned, to go to the Durham & Southern. H. W. Stanley, Trainmaster at Atlanta, Ga., succeeds Mr. Hale.

Traffic Officers.

Colorado & Southern.—George Geiger, heretofore Superintendent of the Kansas City Southern at Texarkana, Tex., has been appointed Superintendent of the Northern division of the Colorado & Southern, with office at Denver, Colo.

Louisiana & Pacific.—C. M. Boswell has been appointed General Superintendent, with office at De Ridder, La.

Missouri, Kansas & Texas.—F. B. Drew, General Passenger and Ticket Agent in Kansas and Indian Territory, has resigned, effective June 1, to go into other business.

Engineering and Rolling Stock Officers.

Central of New England.—W. J. Backes has been appointed Chief Engineer, with office at Hartford, Conn., succeeding W. B. Chapin.

Chattanooga Southern.—H. S. Lloyd has been appointed Master Mechanic, with office at Alton Park, Tenn., succeeding A. D. Folmer.

Lehigh Valley.—A. E. Mitchell, Superintendent of Motive Power, has resigned, effective June 1. Frank N. Hibbits, Mechanical Superintendent of the New York, New Haven & Hartford, succeeds Mr. Mitchell. Mr. Hibbits was born in Indiana in 1866 and is a graduate of the Rose Polytechnic Institute. He began railroad service in 1886 as machinist and draftsman on the Cleveland, Columbus, Cincinnati & Indianapolis. In 1891 he was appointed Engineer of Tests on the New York, Lake Erie & Western, and was made Mechanical Engineer of that road the next year. In 1894 he was appointed Master Mechanic of the Rochester division of the same road, and in 1895 was made Freight Trainmaster of the New York division. Four years later he was promoted to be Superintendent of the Jefferson division, but in 1901 left and went to the Union Pacific as Mechanical Engineer. In 1903 he was appointed Superintendent of Motive Power and Machinery of the U. P., and the next year went to the Southern Railway as Consulting Mechanical Engineer; but after a few months he went to the New Haven road as Mechanical Superintendent.

Mexican Central.—L. F. Whitbeck, Assistant Division Engineer, has been appointed Resident Engineer of the Guadalajara, the Cuernanaca and the Panuco divisions, with office at Guadalajara, Mex.

R. D. Gibbons has been appointed Master Mechanic at Monterey, Mex., succeeding G. W. Cooper, resigned.

New York Central & Hudson River.—Azel Ames, Jr., has been appointed Signal Engineer of the Electric Zone, New York City, succeeding W. H. Elliott, assigned to other duties.

New York, New Haven & Hartford.—F. T. Hyndman, General Master Mechanic, has been appointed Mechanical Superintendent, with office at New Haven, Conn., effective June 1, succeeding F. N. Hibbits, resigned, to go to the Lehigh Valley. Mr. Hyndman was born in 1858 and began railroad service in 1872 in the Ashley shops of the Central of New Jersey. Later he was an apprentice for three years in the Wilkesbarre shops of the Lehigh Valley, and then was brakeman and fireman on the Central of New Jersey. In 1880 he went to the Atchison, Topeka & Santa Fe as a machinist, and the next year went to the Pittsburg & Western. From 1883 to 1895 he was engineman on the last named road, and was then appointed trainmaster. A year later he was Master Mechanic at Allegheny, Pa. In 1902 he went to the Baltimore & Ohio, with the same title, and then to the Buffalo, Rochester & Pittsburg, where he was promoted to be Superintendent of Motive Power. In 1904 he went to the New York, New Haven & Hartford as General Master Mechanic.

Pennsylvania Lines West.—G. B. Fravel, Master Mechanic at Chicago, Ill., has been appointed Master Mechanic at Logansport, Ind., succeeding G. C. Bishop, resigned to go to the Long Island. J. J. Walsh, General Foreman at Toledo, Ohio, succeeds Mr. Fravel.

C. B. Young, Assistant Inspector of Motive Power of the Southwest system, has been appointed Assistant Master Mechanic at Fort Wayne, Ind., succeeding N. M. Loney, promoted.

Special Officers.

Chicago, Rock Island & Pacific.—C. B. Schmidt has been appointed Commissioner of Immigration of this road and of the St. Louis & San Francisco.

LOCOMOTIVE BUILDING.

The Chicago, Burlington & Quincy has ordered 50 simple Prairie (2-6-2) locomotives from the American Locomotive Company and 15 simple Pacific (4-6-2) locomotives from the Baldwin Works. The Prairie locomotives will weigh 216,000 lbs., with 153,000 lbs. on the drivers; cylinders, 22 in. x 28 in.; diameter of drivers, 69 in.; wagon top boiler, with a working steam pressure of 210 lbs.; heating surface, 3,599 sq. ft.; 305 tubes, 2¼ in. in diameter and 19 ft. long; firebox, 9 ft. x 6 ft.; grate area, 54 sq. ft.; tank capacity, 8,000 gallons, and coal capacity, 13 tons. The Pacific locomotives will weigh 222,000 lbs., with 153,000 lbs. on the drivers; cylinders, 22 in. x 28 in.; diameter of drivers, 74 in.; wagon top boilers, with a working steam pressure of 210 lbs.; heating surface, 3,950 sq. ft.; 305 tubes, 2¼ in. in diameter and 21 ft. long; firebox, 9 ft. x 6 ft.; grate area, 54 sq. ft.; tank capacity, 8,000 gallons, and coal capacity, 13 tons.

CAR BUILDING.

The Isthmian Canal Commission is asking prices on passenger cars.

The North & South Despatch, it is reported, has ordered 2,000 freight cars.

The Wisconsin Central has ordered 200 box cars from the Haskell & Barker Car Company.

The Atchison, Topeka & Santa Fe, it is reported, has ordered 61 baggage cars from the American Car & Foundry Co., and is also reported as having increased its order with the Pullman Co. for two passenger coaches.

The Denver & Rio Grande has ordered nine day coaches, five chair cars and four dining cars from Barney & Smith; 250 ore dump cars of 100,000 lbs. capacity, and 250 coke dump cars of 80,000 lbs. capacity from the National Coal Dump Car Co.

The Victoria, Fisher & Western has ordered 30 logging cars of 60,000 lbs. capacity from the Marshall Car Wheel & Foundry Co.

These cars will weigh 14,000 lbs., and measure 28 ft. long and 10 ft. wide, over all. The special equipment includes Marshall wheels.

The Chicago, Burlington & Quincy has ordered 1,900 of the 2,000 box cars of 80,000 lbs. capacity, for which it was in the market, from the Pullman Company. These cars will weigh 34,000 lbs., and measure 40 ft. 5⅝ in. long, 8 ft. 6⅛ in. wide, and 8 ft. high, inside measurements.

The Terre Haute Traction & Light Co., as reported in our issue of May 11, has ordered 10 closed cars from the American Car Co., for August delivery. These cars will measure 30 ft. 8 in. long, 6 ft. 2 in. wide and 8 ft. 10½ in. high, over all. The special equipment includes: Consolidated Car Heating Co.'s heating system.

The Norfolk & Western is preparing plans for nine postal cars. The cars will be 60 ft. long, 9 ft. wide and 9 ft. 4⅞ in. high, inside measurements. The special equipment includes: Diamond special brake-beams, Westinghouse brakes, Ajax brasses, McConway & Torley Co.'s couplers, Gould draft rigging, Pintsch light and Railway Steel-Spring Co.'s springs.

BRIDGE BUILDING.

Albany, N. Y.—The Advisory Board of Engineers in charge of the Barge Canal are trying to reach an agreement with the Delaware & Hudson for the building of a bridge over the canal at Waterford. The engineers are completing arrangements for the building of about 20 new bridges over the canal, each of which is to cost between $80,000 and $200,000. The state is required to build these bridges, but hopes to save a share of the cost by making agreements with the various steam railroad companies for the use of some of the structures.

Bourbon, Mo.—Bids are wanted June 5 by G. L. W. Smith, of Hinch, Mo., at Steelville, Mo., for building a steel bridge 300 ft. long over Meramec river in Crawford County. William C. Evans is County Clerk.

Cleveland, Ohio.—The Cleveland Belt Line, it is said, will soon ask bids for building about 40 bridges, the largest of which will be 2,400 ft. long over Cuyahoga river, and to be 165 ft. above water. Another bridge over the Hill Creek valley will be 1,200 ft. long and 90 ft. high. Most of the others will be over streets. W. R. Hopkins, in the Society for Savings Building, is interested in the company.

Dayton, Ohio.—Plans, it is said, have been completed by the Pennsylvania Co. for building a concrete bridge over the Miami river for the use of that company, the C., C., C. & St. L., and the Cincinnati, Hamilton & Dayton.

Elgin, B. C.—A steel drawbridge is to be built over the river at this place. Address Councillor Johnson.

Fort Snelling, Minn.—The Board of Officers, appointed by the War Department, has practically agreed to recommend the construction of a bridge 300 ft. below the present structure. A bridge at this point will cost about $250,000. It is understood that the city will be willing to pay $100,000 towards the cost and the street car company $25,000.

Fremont, Ohio.—Preliminary arrangements are being made by the Lake Erie & Western for building a bridge over Sandusky river on the site of the present structure. The new bridge will be of steel. The west bridge will consist of four 140-ft. spans and one 129½ ft. span, with 35 ft. deck girders. The east bridge will consist of three spans each 145 ft. 8 in., with a pile approach of 149 ft. Work is to be started shortly, and it is proposed to have the structure completed by the first of next year.

Havre de Grace, Md.—The new bridge of the Philadelphia, Washington & Baltimore, over the Susquehanna river, between this place and Perryville, is to be put in use May 27.

Holton, Kan.—Bids are wanted June 5 by N. P. McConnell, County Clerk, for building three steel bridges in Jackson County. George L. White is Chairman.

Indianola, Miss.—A contract has been given to the Southern Bridge Co., of Birmingham, Ala., at $25,400, for building a steel drawbridge over the Sunflower river at Boyer's Mill, the work to be completed by Jan. 1 next.

Mauch Chunk, Pa.—Bids are wanted June 4 by the County Commissioners for building a steel bridge over Hickory creek in Carbon County. D. Ross is a Commissioner.

Menominee, Mich.—Menominee County and Marinette County, Wis., officials will jointly build three steel bridges over the Menominee river during the coming summer. One will be at Wallace, one at Pembine Falls and the other at Wausaukee Bend.

Montana.—On May 9 the United States Senate passed the bill authorizing the Chicago, Milwaukee & St. Paul Ry. Co. to build a railroad bridge over the Missouri river between Broadwater and Gallatin counties in this state. (May 11, p. 142.)

Philadelphia, Pa.—The bids recently opened for building the bridge over the Wissahickon Valley, on the line of Walnut Lane, to connect Germantown and Roxborough, were: Reilly & Riddle, $253,551; New York Continental Filtration Co., $269,880; Millard Construction Co., $270,000; District Construction Co., $285,900; Michael O'Rourke, $337,000; Schofield Co., $339,300, and Sullivan & Co., $368,894. The time for completing the work was given by four of the bidders at 18 months, one at 20 months, and two at 24 months.

Port Gibson, Miss.—Bids are wanted June 4 by R. C. McCay, Chancery Clerk, for building a 60-ft. steel approach to the bridge over Clark's creek, near Martin, in Claiborne County.

Portland, Ore.—D. W. Taylor, City Engineer, writes that plans have been completed and bids are wanted June 8 for building the bridge on Grant avenue across Sullivan Gulch, which is about 65 ft. deep and through which the tracks of the Oregon Railway & Navigation Co. enter the city. The bridge is to be built for the city of Portland; it will be of steel on concrete piers 350 ft. long and 40 ft. wide, with 12-ft. sidewalks. The estimated cost of the entire work will be $52,000. Bids will be received by the City Auditor. Plans and specification to be furnished by the bidders.

Waco, Tex.—An officer of the Texas Central denies the report that several bridges are to be built along the line of its proposed extension, and that only a 75 ft. span will be put up. For this the material is already on the ground.

Warren, Pa.—The Warren Street Railway Co. is to build a combined highway and street railroad bridge about 1,400 ft. long over Allegheny river at Glade Run. Contract has been let to the Penn Bridge Co.

Washington, D. C.—Both Houses of Congress have passed the bill authorizing the Pend d'Oreille Development Co. to build a bridge over Pend d'Oreille river, in Stevens County, Wash.

Zanesville, Ohio.—Bids are wanted by the County Commissioners for building the superstructure of a highway bridge over the South Fork of Jonathan creek in Roseville, Ohio, to consist of one 105 ft. span, with 18 ft. roadway and 5 ft. sidewalks. L. E. Brelsford is County Auditor.

Other Structures.

Braddock, Pa.—Bids are wanted May 31 by the Baltimore & Ohio for putting up a one-story stone passenger station 34 ft. by 120 ft. Bids are also wanted for a new frame freight house, with slate roof, to have rolling steel doors.

Chicago, Ill.—According to local reports the Chicago & North-Western is planning to build its new passenger station on Canal street. The new station is to be used for through service only, the present structure on the north side being retained for suburban traffic. The proposed station and trainshed is to extend from Madison to Randolph streets, the trains reaching the station over an elevated structure.

Fostoria, Ohio.—Bids are wanted May 26 by the Baltimore & Ohio for putting up a brick passenger station on concrete foundations.

Haddon Heights, N. J.—The Philadelphia & Reading has given a contract to J. Simms Wilson, of Philadelphia, Pa., for building a stone freight house, one story high, 22 ft. by 42 ft. 10 in.

Los Angeles, Cal.—The Atchison, Topeka & Santa Fe, it is said, has given a contract to Carl Leonardt for building a reinforced concrete freight house to be 1,320 ft. long by 91 ft. wide, with spans between columns of 60 ft., to cost $250,000.

Menasha, Wis.—The Chicago, Milwaukee & St. Paul and the Wisconsin Central, it is reported, will jointly build a union passenger station and freight house here, at a cost of $35,000.

Pittsburg, Pa.—According to local reports arrangements have been made by the Baltimore & Ohio for starting work on a new passenger station and freight house to be built east of Try street. The company is to spend about $4,000,000 on the stations and terminals in this city.

St. Louis, Ill.—The Illinois Central improvements include a 16-stall roundhouse to cost $25,000; a turntable and pit, oil houses, cinder pits and ice warehouses.

Sandusky, Ohio.—Bids are wanted May 25 by the Baltimore & Ohio for building a new stone and brick passenger station here.

Seattle, Wash.—The union station to be used by the Great Northern and the Northern Pacific has been completed, and is now in use.

Toledo, Ohio.—The Great Lakes Dredging & Dock Co. has taken the contract to build a new dry dock for the Toledo Ship Building Co., 600 ft. by 105 ft.; also a contract to extend the company's present dry dock to the same dimensions. Also for building sundry

docks along the shipyard slips and river fronts, and for deepening the slips, at a total cost of about $200,000.

WALLA WALLA, WASH.—Announcement has been made that the Oregon Railroad & Navigation Co. will during the coming summer put up a new station, a warehouse, and some side tracks at the foot of Main street. The cost of these improvements will be about $50,000.

RAILROAD CONSTRUCTION.

New Incorporations, Surveys, Etc.

AUGUSTA CONNECTING.—Incorporated in Georgia, with a capital of $100,000, to build a railroad from Augusta six miles to a connection with the proposed line of the Augusta & Florida, now under construction. J. S. Williams and J. W. Middendorf, of Augusta, are interested.

BALTIMORE & OHIO.—An officer writes that work now in progress on the Washington branch includes the completion of the work that was planned several years ago to improve the line so that trains may be run faster. New 100-lb. rails are being laid both here and on the line between Philadelphia and Baltimore. With the completion of this work the entire "Blue Line" from Washington to New York will be laid with 100-lb. rails. New ballast has been put in at many places on the Washington branch. It is also the intention to complete the ballasting of the line from the belt line to Bay View, and on the freight tracks from Huntington avenue to Henrietta street. The company expects, on the completion of the terminal work at Washington, to reduce the time of the fastest passenger trains between Baltimore and Washington from 45 minutes to 35 minutes.

BALTIMORE, FREDERICK & HAGERSTOWN (ELECTRIC).—The officers of this company, organized to build an electric line from Baltimore, Md., to Hagerstown, 78 miles, are as follows: J. E. Ingram, Jr., of Baltimore, is President; J. R. McSherry, Vice-President; T. R. Howard, Treasurer, and H. Coblentz, Secretary, all of Frederick, and R. P. Graham, of Baltimore, Counsel.

CHICAGO, ROCK ISLAND & PACIFIC.—This company will in future use the track of the Chicago, Burlington & Quincy between Kansas City and St. Joseph. This will give the Rock Island a direct line to Fairbury, Neb. The Rock Island has its own line between St. Joseph and Fairbury, 155 miles. Between Kansas City and St. Joseph the Rock Island has no direct line, but runs by way of Cameron Junction or Topeka. The total distance between Kansas City and Fairbury over the new route will be 218.8 miles. The agreement with the Burlington will permit the Rock Island to do a local business between Kansas City and St. Joseph. The new line will also give the Rock Island a through service to Colorado and the Southwest from St. Joseph by way of Kansas City.

CINCINNATI & COLUMBUS TRACTION.—This company, operating 54 miles of road from Cincinnati, Ohio, east to Hillsboro, is considering plans for extending the road from the eastern terminus at Hillsboro north to Washington C. H., 30 miles.

CLEVELAND, CINCINNATI, CHICAGO & ST. LOUIS.—A contract has been given by this company for double-tracking its road from Batesville, Ind., west to Greensburg, six miles. The cost of the work will be about $40,000.

DAVIS & TURNER FALLS.—Incorporation has been granted a company under this name, with headquarters at Oklahoma City, with a capital of $50,000, to build a railroad from Davis, Ind. T., to Turner Falls, 10 miles. The incorporators are: A. L. Welch, Robert Chowning, J. W. Grant, R. H. Wilkins and W. M. Demeryx, of Oklahoma City, and John Watts, of Newton, Kan.

DELAWARE, LACKAWANNA & WESTERN.—An officer writes that this company has authorized work covering a change of line and new third track from Moscow, south to Gouldsboro, Pa., 8½ miles. The contract has been let to Burke Bros., of Scranton, Pa. The company, some time ago, gave a contract to the Williams-Grace Co., of New York, for the construction of a second tunnel through Bergen Hill, Hoboken. Arrangements are also under way for starting improvement work at Scranton.

GATES CITY TERMINAL.—Incorporated in Georgia, with a capital of $500,000, by P. S. Arkwright and Harry Atkinson, President of the Atlantic & Birmingham and the Atlanta, Birmingham & Atlantic, to build terminals in Atlanta. Also to improve the right of way of the A., B. & A. from Howells to Atlanta, about three miles.

GULF & SHIP ISLAND.—An officer writes that the Silver Creek branch of this road was completed April 19. This branch runs from Silver Creek to Columbia, Miss. Train service was started on the 29th. This branch, in connection with the Columbia and Mendenhall branches, forms the Columbia division of the Gulf & Ship Island. The new loop line, which is west of the main line, starts at Maxie, 4 miles north of Gulfport, and joins the main line at Mendenhall, 31 miles south of Jackson, Miss., making this division 104.5 miles long. Train service is now in operation from Gulfport to Jackson.

KLONDIKE MINES.—An officer writes that this company, which was granted a concession to build a railroad about 80 miles long from Dawson City, has let a contract to the Dawson, Grand Forks & Stewart River Railroad Corporation, Limited. A sub-contract has been let to O'Brien & Mackenzie, of Dawson City. The company has three or four miles of track laid already, and is planning to complete about 30 miles this year. The work includes the building of one steel bridge. J. A. C. Seybold is President and H. Blackfield Smith, Chief Engineer, Ottawa, Can. (May 11, p. 143.)

LAUREL VALLEY.—A charter has been granted this company, with a capital of $10,000, in Tennessee, to build a railroad from a point on the East Tennessee and Western North Carolina in Carter County, near Hampton, Tenn., east to Elk river, in North Carolina, by way of the Laurel Fork of the Doe river. The incorporators are: J. C. Tipton, B. C. Shelton, C. F. Camp, C. C. Collins and J. R. Fletcher.

LOS ANGELES INTERURBAN (ELECTRIC).—The Long Beach line of the Pacific Electric system is to be four-tracked for eight miles.

MERIDIAN & TOMBIGBEE.—Residents of Meridian, Miss., have applied for a charter under the above name to build a railroad from Meridian northwest through Lauderdale, Newton and Neshoba Counties to Philadelphia, which is on the Mobile, Jackson & Kansas City, a distance of about 50 miles. Surveys are now being made. C. F. Woods, J. M. McBeath, A. D. McCraven, Frank Heiss, of Meridian, and Dr. J. P. Phillips are interested.

MINNEAPOLIS & ST. LOUIS.—The Minnesota, Dakota & Pacific, which is the Western extension of this road, has filed, in South Dakota, plans of its new lines in that state showing where they cross the State lands. From Watertown the lines run northwest across Codington and Clark counties to Conde, in Spink County, thence west through Mellette and Northville, in Spink County, Cresbard, in Feulk County, to Hogan, on the northern boundary of Potter County, thence northwest to Lebeau, opposite the mouth of the Moreau river on the Missouri river, in Walworth County. This will give the line a valley route across the west part of South Dakota, if it is intended to extend west of the Missouri river. A branch is to be built from Conde northwest through Aberdeen and Brown counties to Leola, in McPherson County.

MINNESOTA, DAKOTA & PACIFIC.—See Minneapolis & St. Louis.

NEW YORK & PORT CHESTER (ELECTRIC).—This company, after contending with strong opposition for three or four years, has at last been granted a franchise by the New York City Board of Estimate and Apportionment for its four-track electric line through the Borough of the Bronx. The company has already been granted franchises by the various municipalities through which it proposes to build in Westchester County to the Connecticut state line. The officers of the company say that work is now to be begun.

NEW YORK ROADS.—A syndicate in which Frederick Nichols, E. R. Wood and Sir Henry Pellatt, all of Toronto, Ont., are interested, has recently been formed to build an electric railroad from Rochester, N. Y., west to Lockport, about 60 miles. The contract for building the road, it is said, has been given to J. G. White & Co., of New York. The cost of the work will be about $2,000,000.

NORTHERN PACIFIC.—Rights of way are being secured by this company for an additional line east and west of Valley City in Barnes County, N. Dak. The new line will leave the main track at Alta, running west and again joining the main line near Berea, and will be one-half mile shorter than the existing line. The new cut-off, which will cost about $1,250,000, is to be used for freight traffic only. It will take about two years to build it.

PARIS & MT. STERLING (ELECTRIC).—Incorporated in Kentucky, with a capital of $100,000, to build from Paris, Ky., on the Louisville & Nashville southeast, 25 miles to Mt. Sterling on the Chesapeake & Ohio. Surveys have been completed and rights of way are nearly all secured. H. A. Powers, R. J. Neely, of Paris; J. T. Collins, of Middletown; H. C. McKee and J. M. Bigstaf, of Mt. Sterling, are interested.

PAYETTE VALLEY.—A. B. Morse, President of this company, is quoted as saying that 13 miles of the road has been completed. The route is from Payette to Plymouth, Utah, through a rich agriculture section. H. E. Dunn, of Salt Lake, Utah, is Vice-President and General Manager.

PHILADELPHIA & READING.—An ordinance has been introduced authorizing this company to change the location of its Steelton branch in Harrisburg. The company seeks permission to leave the present line near Hanna street, and build through a private right of way to the main line, west of the old Robert street bridge, crossing Cameron street near its present intersection at Paxton by a bridge. It also agrees to abolish the grade crossings at Sycamore and Hemlock streets by elevating the tracks 13½ ft. at Sycamore

and 15 ft. at Hemlock street. It also asks the city to vacate the present Poorhouse lane from Cameron street to a point near the present coal wharf of the company, west of Robert street bridge, and agrees in return to furnish a street 80 ft. wide from a point on Cameron street south to Poorhouse lane and to assume all the damages. The ordinance has been sent to the Railroad Committee.

PHILADELPHIA RAPID TRANSIT.—A contract has been given to the Millard Construction Co. for building the eastern section of the Market street subway. The contract also includes the laying of two large sewers, one on each side of Market street, between the City Hall and Front street. The work is to be completed within 18 months.

ST. LOUIS, CHAMPAIGN & DECATUR.—Incorporation has been granted a company under this name to build a line from Litchfield, in Montgomery County, Ill., northeast to Champaign, about 125 miles. The incorporators are: C. A. Wright, W. H. Burke, Charles A. Wright and George M. Mattis, all of Champaign.

SAN ANTONIO & ARANSAS PASS.—An officer writes that this company is planning to replace the present 50-lb. rails with 70-lb. rails on the line from Cuero to Kenedy, Tex., 41 miles. The company has already made a similar change on the line between Yoakum and Cuero, 18 miles.

SAN FRANCISCO ROADS.—Rapid progress is being made by this company and the Ocean Shore Co., laying a network of tracks throughout the Mission district of San Francisco, including McAllester street and lower Market street. New tracks now extend on Fourth street to Townsend street into Market and from Market to the water front near the ferry depot. The Ocean Shore has completed tracks from the main line at Twenty-fifth street, down Howard to the water front. Crossings will be put in so that lines can be extended north from Market street to reach the wholesale district.

SPOKANE & INLAND.—This company is making plans to build a line to connect the line under construction to Palouse City with the Colfax line. The line begins at a point on the Palouse City line about 2½ miles south of Oakesville, and runs southwest along the base of Steptoe Butte, connecting with the Colfax line 2½ miles from the new town of Steptoe.

ROCKPORT, LANGDON & NORTHERN.—This company, operating a line 5.6 miles long from Langdon northeast to Rockport in Atchison County, Mo., will at once extend its line from the northern terminus, at Rockport, north 30 miles to Shenandoah in Page County, Iowa. Preliminary surveys have been made, and this extension, which was projected some years ago, will be carried out by new capitalists who have recently become interested in the company.

WAYCROSS, BAXLEY & VIDALIA.—Under this name a company is projected to build a railroad from Vidalia, Ga., south through Montgomery via Baxley, in Appling County, to Waycross, 55 miles. W. H. Buchanan, George W. Deen, J. M. Cox and W. R. Beach, of Waycross; C. G. Edwards, of Savannah, and W. T. McArthur and George M. Mathews, of Vidalia, are incorporators.

RAILROAD CORPORATION NEWS.

ATLANTA & CHARLOTTE AIR LINE.—The Southern, which operates this road, has submitted to the stockholders' Protective Committee a proposition for issuing $15,000,000 50-year first mortgage bonds, bearing not more than 4 per cent. interest, to be used to refund the $5,500,000 bonds maturing January 1, 1907, and to provide for double-tracking. The Committee will not consent to any plan for increasing the bonded indebtedness of the road unless provision is made for an increase in the rate of dividend upon the stock.

CHICAGO SUBWAY.—This company, which controls the Illinois Tunnel Co., which has built 38 miles of narrow gage tunnels in Chicago for freight transfer, plans to issue $50,000,000 4 per cent. bonds, about December 1. The $17,000,000 outstanding Illinois Tunnel Co. first mortgage 5 per cent. bonds of 1928 will be retired.

CHICAGO TERMINAL TRANSFER.—The Receiver has been authorized to issue $3,500,000 5 per cent. receiver's certificates. Of this amount not more than $750,000 can be issued before November, 1906. The company needs funds to comply with the order of the city of Chicago, compelling it to elevate its tracks on the west side.

DELAWARE, LACKAWANNA & WESTERN.—The stock of this company was quoted at 437¾ on May 2, and rose to 485 until May 16. On May 16 and 17 it rose 15 points and has continued since then, making a new high record of 550 on May 22. The road is estimated to have earned last year 52 per cent. on the $26,000,000 outstanding stock, on which 20 per cent. in dividends was paid in 1905.

GEORGIA & FLORIDA.—Under this name, a syndicate organized by Middendorf, Williams & Co., New York, the International Trust Co., New York, and John L. Williams & Sons, Richmond, Va., will consolidate the following roads, recently purchased: Douglas, Augusta & Gulf, Millen & Southwestern, Augusta & Florida, Nashville & Sparks, Valdosta Southern, the Midvale, Swainsboro & Redbluff, and a 30-mile division of the Ocilla & Valdosta. The aggregate mileage is about 230, and, when certain connecting links are built, the company will extend from Augusta, Ga., to Madison, Fla.

GRAND TRUNK PACIFIC.—The Grand Trunk Pacific Railway Telegraph Co. has been incorporated with $10,000,000 capital.

MICHIGAN UNITED (ELECTRIC).—This company, which was recently organized with $5,000,000 capital stock, of which $1,000,000 is 6 per cent. cumulative preferred, has taken over the Michigan Traction Co., the Michigan Traction Extension Co., the Jackson & Battle Creek Traction Co., the Lansing & Suburban Traction Co., and the Lansing & Jackson Railway Co., the last named being under construction. These companies operate an aggregate of 153 miles of road. The new company has given a mortgage to the Knickerbocker Trust Co., New York, securing an issue of $7,500,000 5 per cent. bonds of 1936, subject to call after May 1, 1916, at 110. Of this amount $1,600,000 has been issued, $2,400,000 is reserved to retire the underlying bonds of the subsidiary companies, $1,000,000 is to be issued in exchange for the bonds of the Lansing & Jackson Railway Co., $500,000 is reserved for the building of power plants and the remainder is to be issued for extensions and betterments.

MISSOURI, KANSAS & TEXAS.—The *Wall Street Journal* gives the following details of the mortgage securing the $20,000,000 4½ per cent. general mortgage bonds of 1936, of which $10,000,000 were sold some time ago. See *Railroad Gazette* of Feb. 16, p. 56. By the provisions of the mortgage the bonds can be declared due and payable on the request of the holders of 25 per cent. of them, after default in interest or sinking fund for a period of three months, but the holders of 75 per cent. of the bonds have the right to direct and control the method of all proceedings for sale, foreclosure, or the appointment of a receiver.

The security of the bonds is as follows:

	Miles.
(1) Subject to 1st mortgage 4% and 2d mortgage 4%....	796
(2) Subject to 1st ext. mort. and refunding mort.....	162
(3) Subject to Kansas City & Pacific 1sts.....	131
(4) Subject to Mo., Kan. & Okla. 1st. and M., K. & T. ref	277
(5) Subject to Tex. & Okla. and Mo., Kan. & Tex. ref..	117
(6) Subject to M., K. & Eastern 1st mort. M., K. & E. 2d mort., and M., K. & T. (St. Louis Div.) ref. mort.	162
(7) Subject to Denison & Wishita Valley mort. and Mo., Kan. & Texas refunding mortgage.....	5

All depots, telegraphs and other appurtenances of these lines are also pledged.

The bonds also have a lien on all the lands that the company may own or acquire in Oklahoma and Indian Territory, subject to the first and second mortgages of the M., K. & T. The following stocks are also pledged:

Mo., Kan. & Tex. of Texas*.....	$10,142,500
Booneville R. R. bridge	998,400
Terminal R. R., St. Louis	205,600
Union Depot of Kansas City	44,000
Missouri & Illinois Bridge and Belt.....	14,900
Hannibal Union Depot.	7,700

*Subject to Mo., Kan. & Texas 1st and 2d mortgages.

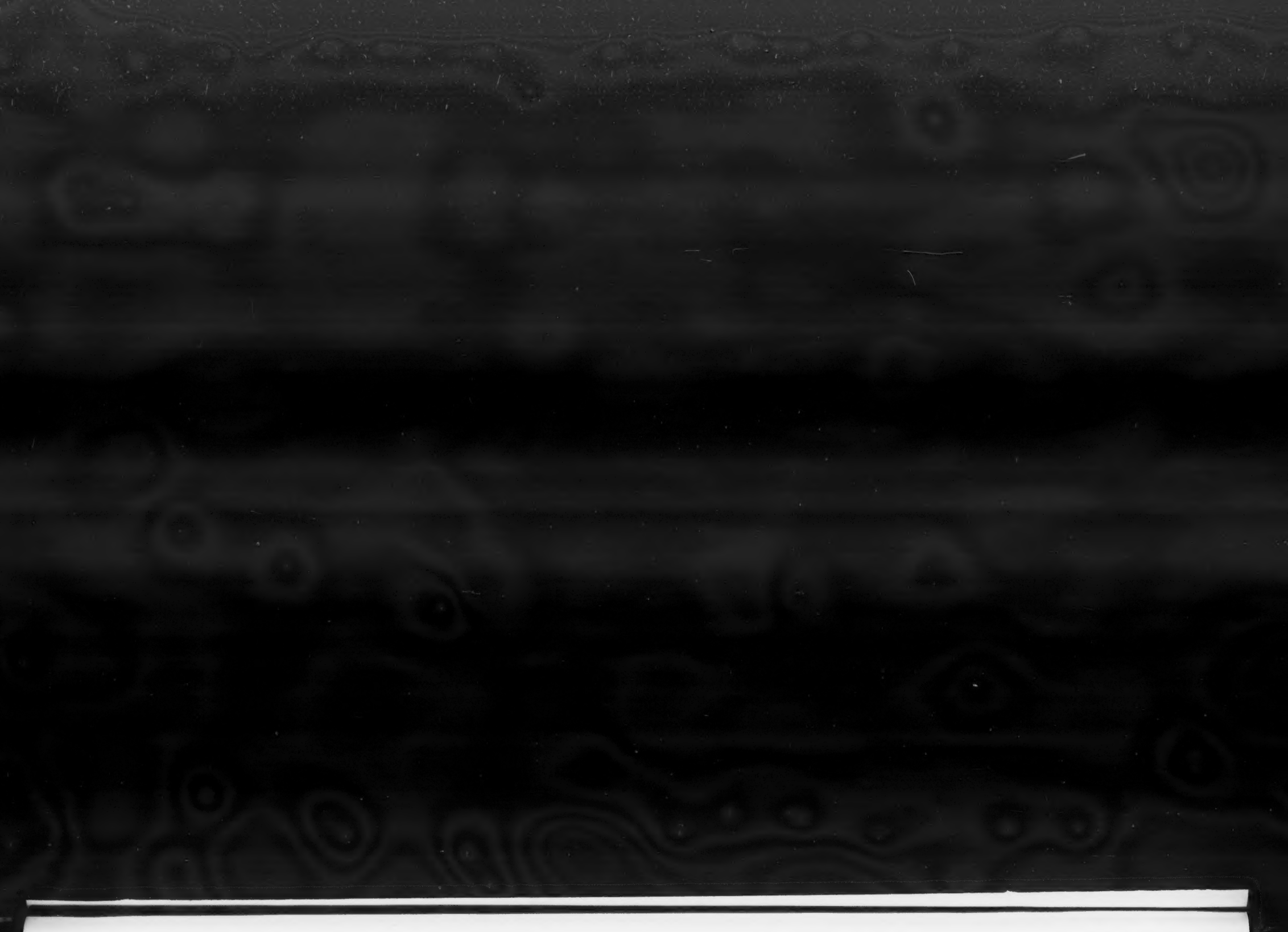
The following bonds are pledged, subject to the M., K. & T. first and second mortgages:

Henrietta & Western Railway	$1,400,000
Trinity & Sabine Railway	1,340,000
Dallas & Greenville Railway	1,040,000
Taylor, Bestrop & Houston	2,055,000
Sherman, Shreveport & Southern	2,000,000

The Texas Railroad Commission has refused to let the M., K. & T. issue $25,000,000 bonds secured on its lines in Texas. Representatives of the company are quoted as saying that this contemplated issue was not needed for some time.

PENNSYLVANIA.—This company has borrowed in Paris $25,000,000 through an issue of bonds of a French investment company secured by Pennsylvania securities. Arrangements have been made to borrow $25,000,000 more.

PERE MARQUETTE.—The Receiver has issued $1,200,000 5½ per cent. receiver's certificates, maturing in equal amounts each six months up to August, 1909. These certificates were issued to provide funds to pay taxes; they constitute a first lien on the entire property of the road. They have all been sold at par.

PITTSBURG, SHAWMUT & NORTHERN.—The Receiver has been authorized to issue $1,100,000 receivers' certificates for improvements. An issue of $3,800,000 was originally authorized for this purpose, but on the petition of a bondholder this amount was held to be excessive, and an injunction was issued restraining the receiver from issuing the large amount.

SEABOARD AIR LINE.—This company has sold to S. D. Loring & Son, Boston, $1,750,000 5 per cent. equipment trust notes, maturing serially during the next 10 years and secured on 437 box cars, 1,000 gondolas and 40 locomotives.